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Editorial Notes

We Must Not Drift

IN times of peace and up to the outbreak of war many platforms were used, and on many occasions, to draw attention to the magnitude of the Gas Industry, its great services to national life in peacetime and its enormous potentialities should ever war be once more declared. It was pointed out that more than £200,000,000 was invested in the Industry, that it directly employed 120,000 workers, that it produced 11,000,000 tons of smokeless coke, 80,000 tons of sulphate of ammonia, over 200,000,000 gallons of tar, and so on. The point was emphasized time and again that, should war grimly come upon us, this great Industry was there as a supplier of raw materials of vital national importance under emergency conditions.

The Gas Industry *is* a great industry, but we have often queried in peacetime whether the Industry really recognized its greatness and whether it was making full use of the opportunities for national service which lay before it. We are now at war, and we raise the query anew whether the Industry is getting together as it could and should to tackle the new problems which have arisen and solve as rapidly as possible the difficulties they may have brought in their train. Did the Industry act promptly, decisively, and as a whole in facing up to the new circumstances brought to birth last September? Did these circumstances act as a compelling stimulus to powerful and much-needed effort, or did they result in numbness and a sense of impotence? Was the immediate policy a " back to the wall " one, or one of forging ahead? We think it right to ask these questions, for we feel that after five months of a war which we are told may well last for years there is still insufficient drive, resolve, and unity on several major issues affecting the Gas Industry, and that to some extent it is wandering for lack of what is commonly called a " lead."

For example, at the beginning of the war there was considerable argument about whether it was or was not desirable to recover benzole from gas—and this in spite of the many peacetime utterances in public places concerning the wonderful potentialities of the Gas Industry in meeting wartime needs. Surprisingly, one could not help noting in some quarters an attitude of reluctance to adopt the process, though in wartime the burning of benzole and toluole in a gas burner would not appear to be in the best national interest. That matter, after a good deal of discussion, has fortunately righted itself to a large extent. The fact remains that the approach to the problem showed lack of preparedness, definition, and common policy within an Industry which had vaunted its strength. Even now there seem to be conflict of opinion and differences in practice among those recovering benzole for which " particular local conditions " can hardly be held solely responsible. As another example, there is the question of reduction of the quantity of sulphur compounds in the gas supplied. Some undertakings are enthusiastic about its removal and have installed the needed equipment for the purpose; some are lukewarm about the question, but are considering the possibilities of the process; others are wholly indifferent and are doing nothing about it. We hope the war will not be made an excuse for carrying on in the bad old way.

Take yet another example of conflict of opinion within the Industry. We refer to the application of compressed gas as a fuel for motor transport. Here is a subject the economics of which cannot be looked at as though we were not at war. We are assured that the saving of every cubic foot of freightage space in our ships is of vital importance at the present time; as the war progresses this importance will obviously not diminish. Gas can replace petrol for motor transport. Gas is a home-produced fuel. As a substitute for petrol it has certain disadvantages and limitations, but technically it presents no difficulties. That it may not be feasible to set about wholesale conversion of vehicles from petrol to gas should not be allowed to damp enthusiasm regarding the conversion of a proportion of vehicles in the country. We think that the substitution of gas for petrol at a time when importation of oil gives rise to anxiety and grave responsibility should be encouraged. What is the opinion of the Gas Industry, as distinct from that of individuals within the Industry in this regard? Ought the Industry to have a defined policy on this question, to be able to speak with one voice, to formulate concrete schemes and *put them forward* to the appropriate Government quarters? The electricity industry, through the Electrical Development Association, is taking positive steps to expand the use of electricity under wartime conditions. We mentioned in these columns last week that the electrically-

propelled vehicle will be treated by the Association on a scale never before attempted. The coal industry, through the British Coal Utilization Research Association, has gone ahead in the development of the producer-gas driven vehicle, has gained much publicity of prestige value, and has aroused Government interest and sympathetic support. The Gas Industry must not allow itself to drift along as though in a spirit of despondency resulting from an inferiority complex.

Research

THIS brings us logically to thoughts on war-time research in the Industry. The war came at a time when the Industry had evolved a more comprehensive organization for research—a co-ordinated scheme embracing all the interests concerned, rightly bringing within its ambit representation and active support of the manufacturers of gas-making plant and gas-consuming appliances. It was a plan of great promise, and early in the war we expressed the hope that, while the special conditions imposed would doubtless render necessary modifications of the programme, they would aid rather than retard this desirable fusion of interests. Research work hitherto directed by the Research Executive Committee is now controlled by the Gas Research Board.

Major lines of research sponsored by the Committee during recent years have been high-pressure gasification, corrosion from products of combustion, combustion characteristics of gas, and ammonia and liquor effluents. The year 1936 saw the conclusion of the Institution Corrosion Reports, the final Report containing notable recommendations. We discussed this work in the "JOURNAL" of January 10 last in the light of further investigations carried out on the problem, in the laboratories of individual gas undertakings. In 1937 it was decided that there was no longer need for continuous experimental work on ammonia and liquor effluents. Last year, with the publication of the 44th Report of the Joint Research Committee, which was concerned with further examination of the aeration test burner and with experimental work to establish the relationship between the A.T.B. Number of town gas and its behaviour in domestic and other gas appliances, laboratory experiments at Leeds on the aeration test burner were suspended.

The one line of investigation, then, which is being continued is that on the high-pressure gasification of coal. War-time circumstances did not permit of the publication last November of the findings of the research carried out during the previous twelve months. The outbreak of war led to delay in the erection and operation at the Fuel Research Station of a semi-technical plant, but we were assured by the final Report of the Research Executive Committee that the manufacture of the necessary apparatus was well in hand, and that the two Reports dealing with the work undertaken in 1938-39 would be released for publication at the earliest appropriate moment. At the present juncture it would be highly interesting to know what progress has been made in the erection of semi-technical plant at the Fuel Research Station. In the "JOURNAL" of Dec. 6 we expressed the view that we should not become impatient because for the time being we are forced to be left in the dark, and we suggested that we could with confidence leave to the good judgment of those responsible for the prosecution and conduct of this important line of research how much time, energy, and money should be concentrated upon it. War, we said, should not allow us to shut our eyes to the possibilities of a Gas Industry on a new and different scale or cause us to lose heart in an investigation which in its early stages showed such promise. But work on this high pressure technique is, of course, definitely *long term research.*

At the same time there are immediate problems which must be facing the Industry, and therefore occupying the attention of the Gas Research Board, which are directly due to the new circumstances of to-day; and the Industry would welcome news from the Board of new investigations of practical importance which may be being considered or put in hand, and would welcome news, too, of any moves which may have been made in the setting up of a Technical Information Bureau, which was such an important feature of the Board's scheme and the functioning of which should be more than ever helpful in war. Regarding technical problems, we may ask whether work is desirable on the utilization of pitch, whether the war has brought about a change in the ammonia situation, whether present conditions and future possibilities warrant investigation into the use of materials other than imported oxide for purification. We may ask, too, what the Industry's attitude is to investigation aiming at the development of fuels suitable for use in producer-gas vehicles. These are a few of the thoughts which come to mind at the present time.

The war calls for great, convincing, and unified effort by the Gas Industry in general policy and in research activities. The Industry is doubtless in unobtrusive ways doing a great deal towards winning the war. Many workers in it feel that its war effort could be even greater if it could be better co-ordinated and unified by an inspired and inspiring lead in certain directions which would eliminate any idea that it is composed of scattered units which individually cannot pull their full weight.

Prestige, Publicity, and Sales

ON the question of research we cannot, as we have emphasized, remain inactive, and it is good to know, as we do, that many individual undertakings and many manufacturing firms of repute in the gas appliance industry are not being content to rest on peace-time laurels. Our issue a fortnight ago, devoted largely to a description of developments in gas appliance design as a result of individual effort by gas undertaking on the one hand and manufacturer of gas appliances on the other, should have proved a source of encouragement and, we might add, pride, for at all costs we must retain our pride and faith in the Industry.

In the years after the last War we developed a publicity organization second to none among the industries of this country—an organization envied and emulated by the electricity industry. We refer, of course, to the B.C.G.A., whose publicity and work generally raised both the prestige and the volume of business of the Gas Industry. September last witnessed a "truce" between gas and electricity—a somewhat mysterious truce which may, however, have had its beneficial effect in the direction of suspending rationing, and certainly did no harm in that wholly admirable "getting together" of the two interests to make possible, through scientific experiment, a measure of lighting relief in the black-out. The truce was arranged in that first phase of numbness following the outbreak of war, and accompanying it was the suspension of B.C.G.A. advertising, the pushing of gas sales in any direction, and curtailment of many of the other activities of the Association, though it was obvious at the outset that it had a useful part to play in helping the Industry to maintain good consumer relations and to inform and educate the public on developments.

The months have passed and we may, continuing in questioning vein, ask what actually the position of the "truce" is at the end of January, 1940. We gave some idea in these columns last week of what the Electrical Development Association has decided upon in regard to factory lighting, agricultural electrification, electrically propelled vehicles, and also the domestic load in its several aspects. As we have said, the preparations are on a scale never before attempted. "The 'truce' with the Gas Industry," remarks an electrical contemporary in its current issue, "has had a depressing effect. There is an increasing weight of opinion that overlapping of sales effort cannot be avoided and the scheme is unworkable."

We think, too, that the truce has had a by no means stimulating effect on the Gas Industry, and we can see no reason for continuing as an Industry in a depressed frame of mind. Inevitably circumstances are not conducive to rousing cheerfulness, but that is no reason why the Industry, with its many war-time chances and opportunities in the domestic sphere and in industry, should add to the general gloom, and its personnel sigh and pull long faces at one another. Let us repeat that the Gas Industry is a great industry and of vital importance in war-time. A bold face and a progressive spirit are wanted and they are justified; and we must, to put it bluntly, "get a move on."

"There must be no standing still." That is the title of an article in our issue to-day by a member of the "JOURNAL" staff in which he records impressions from many contacts with gas undertakings of all sizes and with makers of gas appliances. The dominant impression to be gained from the article is that there is a move towards more positive trading methods, but that the move is too hesitant and timid. Sales activities are increasing, but all too slowly. Better facilities for the acquisition of appliances are gradually being introduced, but here again the return to more normal methods is slower than circumstances do in fact warrant. To say that there is stagnation would be untrue; it would be equally untrue to say that there is a general powerful and determined drive to make the best of war-time conditions. We are driven to the conclusion that what is wanted to-day in more than one phase of the Industry's activities is a greater measure of confidence and a strengthening of the belief that the Gas Industry has an enormously important purpose to fulfil. "There must be no standing still."

On the Industry's Behalf

THE outbreak of war and the manifold complications which numerous Acts and Orders brought with them have demonstrated, perhaps more than ever before, the need for a co-ordinated front in the shape of efficient National Bodies—not only in taking appropriate action where undue hardship has been imposed, but also in helping to elucidate for members points of difficult interpretation. The comprehensive report of the Gas Companies' Protection Association, together with the authoritative statement by Mr. F. G. Brewer who presided at the Annual Meeting, reported on later pages to-day, indicates the usefulness of a body which watches the specific interests of company owned undertakings.

On many subjects arising out of wartime and other legislation the Association's advice has been freely sought by members during the past year, while the various sub-committees have continued to function effectively on behalf of gas companies throughout the country. The principal matter with which the Association was concerned before the war was the Select Committee of the House of Lords on gas, electricity, and water undertakings with reference to financial operations. While the Select Committee was concerned primarily, though not entirely, with the activities of holding companies and their subsidiaries, the proceedings were watched daily by the Association's Secretary, Mr. R. Girdlestone Cooper, until the adjournment, *sine die*, consequent upon the outbreak of hostilities. It has been decided that, should the resumed enquiry develop along lines which make such a course desirable, the Association will ask leave to be heard at a later stage.

Income-tax questions have continued to occupy a good deal of attention, and the Association, in conjunction with the National Gas Council, have maintained a close watch upon the effect of rating and taxation generally and have pressed for relief in various directions where it is considered that gas companies are being unduly handicapped. The work of the Association is further strengthened by their representation on a number of important national organizations, particularly in connexion with the Conjoint Conference of Public Utility Associations. Of major importance is the manner in which the Conference vindicated before a Joint Select Committee the rights of public utilities with regard to mains and cables in highways, and it is most satisfactory to have the authority of the Joint Committee of both Houses of Parliament for the principle that the cost of removing mains and cables should be borne by the party responsible for the alteration of the highway. The Committee also recommended that the same principle should apply in the case of bridges.

It will be a source of pleasure to members of the Association to know that Mr. Frank H. Jones has signified his willingness to retain the Presidency while, finally, it is gratifying to note that the financial strength of the organization has been well maintained.

Water Softening by Base-Exchange

THE Report of the Water Pollution Research Board for the year ended June 30, 1939, which has just been published (H.M. Stationery Office, 1s. net) contains interesting information concerning recent developments in the base-exchange method of water softening. The materials available for this purpose include natural glauconites, treated clays, synthetic zeolites, certain synthetic resins, and materials prepared from carbonaceous substances such as coal. Of these materials, natural glauconites and treated clays have not hitherto been produced on a large scale in this country. Previous work under the Board has shown that satisfactory base-exchange substances can be obtained by treatment of fullers earth, which occurs in large amounts in Great Britain. During the year under review, further work has been done on the examination of British minerals for the preparation of base-exchange materials. One of these minerals, a glauconitic sand, from a brick-works in Surrey, has a high base-exchange capacity and appears to be a suitable raw material for a base-exchange zeolite for the treatment of water. Other work on the base-exchange process has included the investigation of the effect of temperature on the base-exchange capacity of a number of representative base-exchange materials. Within the limits 4 to 20° C., temperature has no significant effect on the exchange capacity of any of the materials tested.

Inert Gas Applications

At the Institution Research Meeting in 1937 one of the Communications described a simple method of purging gasholders with inert gas—a method ensuring 100% safety in clearing a holder or re-charging it with gas. The application of the method has since grown and has extended to purposes other than the purging of holders. For the smaller undertakings machines have been developed which are now available on hire. The method represented an important advance in gas-works technique. The machine described in that Communication was evolved in America. We now learn from the American Gas Association of further application of an inert gas generator—a new type of apparatus—to certain processes in the manufacture of paint or varnish. The method is now being used with very satisfactory results indeed in three of the largest paint and varnish works in the United States. The inert gas is delivered at low cost and in large volume for "blowing" synthetic varnishes during manufacture, for excluding air from contact with heated batches of varnish or oil, for eliminating skinning in plant storage, and for preventing the accumulation of gummy layers of oxidized paints or varnishes. We are informed that the cost of providing atmosphere protection in this way is only about one-fifth of the cost previously incurred in supplying bottled carbon dioxide for the same operations.

Gas-Bags on Buses

Gas-bags may again be used on the tops of single-decked buses, as in the last war, and the Minister of Transport has announced that he proposes to amend certain regulations in order to allow this to be done. Existing regulations limit the height of a single-decked bus to 10 ft. 6 in. It is proposed to increase the permitted height to 15 ft. where the extra height is due solely to the adaptation of the vehicle for the carriage of flexible gas containers. Containers are not, in the aggregate, to exceed 150 lb. in weight, and the gas pressure must not exceed 1 lb. a square inch above atmospheric pressure.

Obituary

W. W. Townsend

An Appreciation from Leonard Bott

While it is most fitting that those who have been close friends in many phases of life should express their appreciation and affection for one with whom they have experienced much of the social and commercial activities which test the character of us all, there are others who are privileged to meet men occasionally, and whose business cultivates and necessitates a prompt and accurate appaisement of the qualities of those they have to interview.

My own contacts with the late Mr. Townsend cannot have been numerous and I well remember the first one. This was at Colchester, where I had been sent by my firm to inspect and report upon the condition of a large gasholder. Had I been the founder and owner of the firm I then represented I could not have been received with more courtesy than I was on this occasion. The gasholder was nearly empty and I was able to step on to the crown from the yard level, and I was accompanied by one of the gas-works' workmen who carried a long light rope. This man had been appointed by Mr. Townsend to render me any assistance I might need. The gasholder was then inflated and I carried out my observations as it ascended. When the holder was quite full and that part of the inspection concluded there had arisen no occasion for the use of a rope. I then came to the conclusion that as the man was an ex-sailor he and a rope were inseparable.

It was late noon when I said to my assistant, "We will now go down, and after lunch I will examine the lifts as they are deflated." My assistant replied, "You can't go down; there is no ladder!" At this juncture he pointed to a boy in the gas-works yard below carrying a basket and said, "That is something the Governor is sending for us," and he at once began lowering the rope to the ground. Upon the basket being hauled up and landed on the crown it was found to contain two very good lunches, two "Thermos" flasks, and one magazine of light reading. The sailorman then told me that the "Governor" had told him that we should be marooned on top of the gasholder for some hours and it would be late in the evening before we should come to earth. It was a glorious day and the picnic passed off perfectly. Very little of the magazine was read until my return journey in the train, the view from the top of the gasholder being most interesting. After satisfying myself with all these good things I came to earth via the diagonal wind tie rods and resumed my inspection of the holder, having added to my first very favourable impressions of Mr. Townsend those of unusual consideration and exceeding kindness.

All subsequent meetings between us—mostly at Colchester—have revealed other equally charming qualities and admirable accomplishments. Being a man of versatile learning and with a concentrated experience, he yet listened patiently and carefully to the opinions of others, disagreeing without dogmatizing and agreeing without patronizing.

* * *

Dr. T. A. Ives Howell

Dr. T. A. IVES HOWELL, J.P., known for a long lifetime in Wandsworth as medical practitioner, as a leading figure in public life, and a Director of the Wandsworth and District Gas Company—of which his grandfather was one of the founders—died on Jan. 12 in his 83rd year.

Dr. Howell's link with the Wandsworth and District Gas Company is particularly interesting. His grandfather—Dr. James Howell—was one of a small group of inhabitants called together in 1834 at the old "Spread Eagle Inn" to consider the advisability of establishing a gas-works. He became a member of a provisional committee which moved quickly, for they held several meetings, and in little more than a fortnight recommended to a special meeting that it was highly expedient that the parishes of Wandsworth and Putney should be lighted by gas. Dr. James Howell was a member of the first Board of Directors of the Company, and became Chairman in 1834, continuing in office for 12 years. His son, Thomas S. Howell, became Chairman in 1853, and continued for 43 years until 1905, and Dr. T. A. Ives Howell, his son, became a Director in 1895. He was Deputy-Chairman of the Company from 1933. In 1937 he joined the Board of the Woking District Gas Company. Dr. Howell was Chairman of the Co-Partnership Committee from the time of its formation in 1910, and it is on record that he was only absent from the annual general meeting on one occasion. He was also a member of the original Joint Works Committee of the Wandsworth Gas Company.

The funeral took place at Wandsworth Cemetery, the first part of the service being held at St. Anne's Church, Wandsworth. Among those present were: Mr. Frank H. Jones (Chairman of the Wandsworth Company), Mr. G. F. Page, Mr. B. R. Green, Mr. E. Sherrard, Mr. J. B. Brown, Mr. E. M. Wood (Directors), Mr. C. M. Croft (Chief Engineer and General Manager), Mr. L. Bates (Comptroller), Mr. G. M. Willmott (Registrar), Mr. R. H. Buxton (Deputy-Engineer), Mr. C. Stredwick (Chief Accountant), Mr. G. Ireson (Sales Manager), and many other representatives of both Wandsworth and Woking Gas Companies.

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The death occurred on Jan. 10 of Mr. MORRIS CHARLES LAMB, F.R.C.S., formerly Principal of the Leathersellers' Technical College, Tower Bridge Road, S.E., at the age of 64 years. Mr. Lamb will be remembered especially for the research work which he carried out in connexion with gas meter diaphragms, and for the subsequent specification, first introduced by the South Metropolitan Gas Company, and later adopted with minor variations, not only by the majority of gas undertakings and gas meter manufacturers in this country, but in many parts of the world.

Mr. Lamb entered the Yorkshire College, now Leeds University, as an Assistant to the late Professor H. R. Procter—the founder of leather chemistry in this country—in 1842, later becoming demonstrator. In 1899 he was appointed Director of leather dyeing and finishing at Herold's Institute, Bermondsey, which was the forerunner of the present Leathersellers' Technical College, of which he became Principal in 1927. Under his guidance the College flourished to such an extent that it came to be regarded as the most efficient and best equipped of its kind in the world, and attracts students of all nationalities. Mr. Lamb has been the author of a large number of technical publications, and his books have been translated into both French and German (being regarded highly, both in this country and on the Continent).

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The death occurred on Jan. 22 of Mr. JAMES HEWETT, for many years Distributing Engineer to the City of Birmingham Gas Department. Mr. Hewett commenced his service with the Birmingham Undertaking as Chief Draughtsman in November, 1897, upon the staff of the late Mr. Henry Hack, and he had much to do with the extension and reconstruction work which was then taking place, including the layout of the Nechells Gas-Works. In 1902, when Mr. Hack was made Engineer-in-Chief, Mr. Hewett was Chief Draughtsman of the Department, and had control and supervision of the various Drawing Offices. During this period Mr. Hewett built up a reputation for ability and conscientious service, and in 1908 was appointed Distributing Engineer, the position he occupied until his retirement in 1936.

He leaves a widow, son, and daughter.

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Mr. JOHN WILSON HARTLEY, who has died at Carnforth, Cumberland, was formerly a Director of the Carnforth Gas Company, Ltd.

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The death took place on Jan. 25 of Mr. JAMES COCHRANE, Gas Manager at Darvel, Ayrshire. His death severs a long connexion of the Cochrane family with the management of Darvel Gas-Works. When these were first erected in 1853 the deceased's grandfather was appointed Manager, and on his death he was succeeded by his son. On the latter's death Mr. James Cochrane, his son, took over control.

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Mr. JOHN WILLIAM NAISMITH, Manager of the Kilmacolm Gas Company, died on Jan. 26.

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The death took place suddenly on Jan. 22 of Mr. T. E. FURNISS, Engineer, Manager, and Secretary of the Guisborough Gas Company, Yorkshire.

Personal

The French Government have conferred on Mr. J. E. HENWOOD, for many years in the service of the Gas Light and Coke Company, "La Croix de Chevalier du Mérite Agricole." The honour, on which his many friends in the Gas Industry will join us in congratulating him, is in recognition of his valued services to cookery and his long friendship and co-operation with French culinary circles in London and elsewhere.

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Mr. J. H. DONCASTER has resigned from the Board of Directors of the Sheffield and District Gas Company. To fill the vacancy, the Board have elected Mr. W. W. WOOD, a former Master Cutler and nephew of the late Mr. B. G. Wood, who was at one time Deputy Chairman of the Company.

Letter to the Editor

Sir Francis Goodenough, C.B.E.

SIR,—I have read with interest the notices you have been publishing relating to the work of Sir Francis Goodenough, and while it is true that a reference was made in one to his interest in the education of employees in the Gas Industry, I feel it ought to be put on record that for very many years he was Chairman of the Advisory Sub-Committee of the Westminster Technical Institute. The association of the Gas Light and Coke Company with the Westminster Technical Institute, in particular the scheme whereby the Company enables its young apprentices to attend day classes in the Company's time, is often quoted in official circles as the outstanding example of co-operation between technical education and industry in this country.

Sir Francis Goodenough, during his work as Controller of Gas Sales of the Gas Light and Coke Company, was largely instrumental in enabling this scheme to be put into operation and thus for more than 30 years his interest in young employees has been of outstanding value to the Gas Industry and to the men themselves.

The Annual Prize Distribution, which for many years past was held in the Horseferry Hall of the Gas Light and Coke Company, and being attended by some hundreds of gas apprentices, officials of the Board of Education, and representatives of the Gas Light and Coke Company—who, it should be remarked, provided excellent refreshments for all attending—was naturally always under the Chairmanship of Sir Francis Goodenough. On these occasions music, community singing, and lectures were given, and the spontaneous outburst of 700 lusty gas apprentices singing "Glorious Devon" was something to be remembered.

The work of Sir Francis on the Advisory Sub-Committee was most highly valued by us all. He was expeditious, extremely friendly and considerate in all matters concerning students, and always ready to assist in affairs concerning the Institute in whatever field the problem arose.

I therefore feel it only right and proper that I, as the Principal of this Institute, should write to give some details of the branch of activity in which I know Sir Francis always exhibited great personal interest, and to say how much staff and students at the Institute feel his loss.

Yours, &c.,
J. N. LONG,
Principal.

Westminster Technical Institute,
Vincent Square, S.W. 1.
Jan. 26, 1940.

Forthcoming Engagements

Feb.

6.—Gas Research Board.—Finance Committee, Gas Industry House, 12 noon.
13.—N.G.C.—Central Executive Board, 11 a.m.
13.—I.G.E.—Finance Committee, 2 p.m.; Membership Committee, 2.30 p.m.
13.—I.G.E.—Finance Committee, 2 p.m.; Membership Committee, 2.30 p.m. (both provisional).
16.—B.C.G.A.—Annual Meeting of Members in Scotland, Central Station Hotel, Glasgow, 2.30 p.m.
19.—I.G.E.—Chairmen's Technical Committee, 2.30 p.m.
19.—L.C.C.A.—Finance Committee, 10.45 a.m.; Executive Committee 11.15 a.m.; Central Committee, 2.15 p.m.
20.—I.G.E.—Gas Education Executive Committee, 11 a.m.; Gas Education Committee, 2 p.m.
20.—I.G.E.—Gas Education Executive Committee, 11 a.m.; Gas Education Committee, 2 p.m.
22.—Institute of Fuel.—Meeting at Burlington House, Piccadilly, W.1, 2.15 p.m. Paper by S. Thomson, "Modern Gas Storage."
26.—I.G.E.—Methane Panel of the Joint Committee on Complete Gasification, 2 p.m.

March

1.—Gas Research Board.—Joint Committee on Complete Gasification under Pressure, 2.30 p.m.
11.—I.G.E.—Finance Committee, 1.45 p.m.; Membership Committee, 2.15 p.m.; General Purposes Committee, 3 p.m.
12.—I.G.E.—Council Meeting, 10 a.m.
14.—Gas Research Board.—Refractory Materials Joint Committee, 2.30 p.m.
15.—I.G.E.—Liquor Effluents and Ammonia Committee, 11.30 a.m.
15.—Gas Research Board.—Joint Research Committee, 2 p.m.
19.—I.G.E.—Gas Education Executive Committee, 2 p.m.

Legal Intelligence

Action Against St. Neots Company Settled

The action brought by Paine & Co., Ltd., millers and maltsters, claiming penalties against the St. Neots Gas and Coke Company, was settled before Mr. Justice Hallett in the King's Bench Division. The terms of settlement were not made public, but were endorsed on Counsels' briefs.

The action arose out of the alleged fouling of a sump or well on the claimants' property, which adjoins that of the Gas Company. Damages amounting to £200 were claimed under Section 21 of the Gas-Works Clauses Act, 1847, in addition to £20 a day as from Jan. 20 of last year under Section 23 of the same Act. The claim was based on the allegation that the Gas Company had caused or allowed to flow into the sump or well certain washings or other substances produced in the manufacture of gas, as a result of which the water was fouled.

The Gas Company denied liability and disputed the claim. It was stated that in November, 1938, an unsuccessful action was brought against the Company by the same firm, who then claimed damages for injury alleged to have been caused to their business as a result of the pollution of the wells from which they obtained their water. That action was dismissed by Lord Justice Goddard, and a subsequent appeal against his decision failed. The present claim had previously been before Mr. Justice Hallett, but was adjourned.

Counsel for claimants now announced that during the adjournment the parties had agreed terms, and His Lordship would not be troubled with the case any further. He asked that the record should be withdrawn. His Lordship observed that he was glad the parties had found a solution of the matter; he could see the need for some further agreement, but that was not a matter for him. The record would now be withdrawn.

Dividend Announcements

Gas Light and Coke Company

The Directors of the Gas Light and Coke Company have decided to recommend to the proprietors at the Annual General Meeting of the Company to be held on Feb. 15 the payment of dividends for the half-year ended Dec. 31 last as follows:

On the 4% consolidated preference stock at the rate of £4% per annum.

On the 3¼% redeemable preference stock, 1970, at the rate of £3 15s.% per annum.

On the 3½% maximum stock at the rate of £3 10s.% per annum.

On the ordinary stock at the rate of £3 8s.% per annum, making a dividend of £4 10s.% on the ordinary stock for the year 1939. The rate of £4 10s.% for the year 1939 compares with £5 12s.% for the previous twelve months.

Commercial Gas Company

The Directors of the Commercial Gas Company at the Annual General Meeting on Feb. 15 will recommend a final dividend of 1% (less income tax) on the ordinary stock of the Company, making, with the interim dividend of 2% paid in August last, 3% for the year to Dec. 31, 1939. The balance of the Revenue Account was £110,284, subject to audit, which compares with £120,579 for the previous year.

The dividend for the previous year was at the rate of 4½%.

Wandsworth and District Gas Company

The Directors of the Wandsworth and District Gas Company will recommend to the stockholders at the Annual General Meeting to be held on Feb. 13, dividends for the half-year ended Dec. 31, 1939, at the following rates:

On the 4% Preference Stock	2%
„ „ Consolidated Stock	1¼%

making a total dividend for the year ended Dec. 31, 1939:

	per annum.
On the 4% Preference Stock	4%
„ „ Consolidated Stock	5%

Further Price Increases

In addition to the increases in the price of gas by various undertakings, referred to already in these columns, the undermentioned advances have also been announced:

Buckhaven and Leven.—By 4d. per 1,000 cu.ft.

Horncastle.—By 5d. per 1,000 cu.ft.

News of the Week

A Series of Special Instructional Lectures to the Runcorn Women's Voluntary Services was concluded with the lectures held under the auspices of the Runcorn and District Gas Company. The course of lectures given by Miss E. Eccles, of Cannon Iron Foundries, Ltd., was extremely successful and greatly appreciated.

Tenders Have Been Accepted by the Middlesbrough Gas Department for ordinary gas meters from Alder and Mackay, Ltd., of Edinburgh, and J. & J. Braddock, of Oldham; and for prepayment metres from Metropolitan Gas Meters, Ltd., of Nottingham, and Willey & Co., Ltd., of Exeter.

At the First Meeting of the Technical Co-ordinating Committee of The Institution of Gas Engineers held on Jan. 19, it was unanimously resolved to recommend to the Council that the name of the Committee be altered to the Chairmen's Technical Committee. The second meeting of the Chairmen's Technical Committee will be held at Gas Industry House, on Friday, April 19, at 2.30 p.m.

A Protest is to be Lodged by the Abergele Council against the increased charge made by the Rhyl Urban District Council Gas Department. It was stated that Rhyl's Gas Undertaking had a reserve of £16,000, and that the time was opportune to put this sum in circulation for the benefit of consumers instead of increasing the price. The protest will be conveyed to the Rhyl Council by a deputation of four.

According to the Rotterdam Correspondent of *The Times*, writing on Jan. 24, shortage of gas is the latest hardship which the people of Berlin are having to endure. During the past few weeks the consumption has been abnormal, and the gas-works have been unable to cope with it. The Burgomaster of Berlin has now ordered householders not to use their geysers more than twice a week and to be sparing with the use of other appliances.

It was Suggested by Mr. Dean Chandler in the course of his review in last week's "JOURNAL" of Arthur Coe's "Science and Practice of Gas Supply," Vol. 3, that the price (two guineas), though not unreasonable, would, unfortunately, place it outside the reach of many who would profit by possessing it. It may not be generally known, however, that after the full price has been paid for one copy subsequent orders by gas undertakings placed with the British Commercial Gas Association—who publish the work—will be charged at the rate of only half-a-guinea per copy.

A Resolution Demanding that the Government "shall give effect to the principle of equality of sacrifice by restricting the price of gas, electricity, and water to pre-war level" was unanimously passed at a meeting of protest against the increased gas and electricity charges in the London area, held at the Conway Hall, W.C.1, on Jan. 18, under the auspices of the London Traders' Defence League. Copies of the resolution have been sent to the Prime Minister, the Minister of Transport, the Electricity Commissioners, and the Board of Trade.

The First Bi-monthly Unit which will be issued to members participating in the B.C.G.A. Studio Window Display scheme during the month of February presents the important rôle that the Industry is playing in the production of by-products to assist in the prosecution of the war, and provides a timely, forceful, and attractive propaganda unit. Designed primarily for use in showroom windows, this display, because of its theme and attractive, colourful design, will command attention inside showrooms and in demonstration theatres too. Augmented with examples of actual by-products, it will make an admirable unit to be loaned to schools, clubs, and other interested organizations, for lecture purposes. In size it is 10 ft. long by 5 ft. 8 in. high.

Modern Gas Storage is the subject of a Paper to be read by Mr. Stanley Thomson to the Institute of Fuel at a meeting at the Geological Society of London, Burlington House, Piccadilly, W.1, at 2.15 p.m., on Feb. 22. The Paper, which will be followed by a discussion, will be illustrated by a cinematograph film showing the construction and erection of a waterless gasholder. Mr. F. M. Birks, of the Gas Light and Coke Company, will take the chair. Members of the Institution of Gas Engineers will be welcome at this meeting, and advance copies of the Paper may be obtained upon application to the Secretary at Gas Industry House, S.W. 1. Mr. Thomson's Paper and the film will be repeated at a meeting in the Neville Hall, Newcastle-upon-Tyne, at 6 p.m., on Feb. 29.

Record Gas Sales have been shown recently by the Warrington Gas Department. The previous day's record was 3,989,000 cu.ft., while on Jan. 22 last the figure reached 4,074,000 cu.ft.

Blackburn Education Committee, on Jan. 24, accepted the tender of the Corporation Gas Committee for the installation of six gas radiators in the gymnasium of the Girls' High School.

The Colchester Gas Company are inviting applications for the post of Manager and Engineer. Further details can be obtained from the advertisement pages.

Grosvenor Utilities, Ltd., advise us that they have now returned to their old address at Terminal House, 52, Grosvenor Gardens, London, S.W.1, telephone Sloane 0133-4.

A New High Record output of gas was delivered from Perth Gas-Works at Friarton on Jan. 22. The amount sent out was 1,869,000 cu.ft., which surpassed the previous record of January, 1939. The total gas sent out for the week ended Jan. 24 was also a record figure of 11,742,000 cu.ft.

Applications for the Recent Offer by the Canterbury Gas and Water Company of £42,000 5% redeemable preference stock at a minimum of par totalled £266,310. The average price realized was £107 14s. 1d.% and the lowest tender to receive allotment was 107½.

Although the Department has had to meet increased coal costs and expenditure on A.R.P., besides other additional expense, Leeds Gas Committee, at a recent meeting, made no decision about an alteration in the price of gas to consumers. The question of making an increase will be discussed at next month's meeting.

Bolton Gas Department, always to the fore in sponsoring advice on culinary problems for housewives, has this week organized two talks on cooking without drawing on rationed commodities. Appetizing dishes without the use of bacon or butter, and dessert courses using fruits containing natural sweetening properties have been demonstrated.

A Good Programme of wartime Cookery Demonstrations was brought to a successful conclusion recently in the Lancashire and Cheshire Areas. These were held with the co-operation of the United Kingdom Gas Corporation, Ltd., and the goodwill and intense interest of the audiences were maintained by Miss Eccles, of Cannon Iron Foundries, Ltd., who demonstrated in a most efficient manner.

In His Remarks to the London and Southern District Junior Gas Association on the subject of purification with burnt oxide (see page 190 of last week's "JOURNAL"), Mr. G. E. Thompson was reported to have said that at the works with which he is concerned the gas passes through what is effectively a column of oxide about 18 ft. high at the rate of some 17,000 cu.ft./day/sq.ft. of initial surface. This should have read 1,700 cu.ft./day/sq.ft.

The Gas Undertaking is Losing £1,000 a Year owing to the war, it was stated by Coun. G. W. West, Chairman of the Gas Committee, at a recent meeting of the Gainsborough U.D.C. The figure, he said, was made up of £400 for A.R.P., £300 for extra cost of coal, and a drop of £300 in the normal income from street lighting. In spite of this, it was not proposed to increase the price of gas, thanks to the strong position of the Undertaking. It was necessary, however, to transfer the sum of £2,300 from the reserve fund to the revenue account.

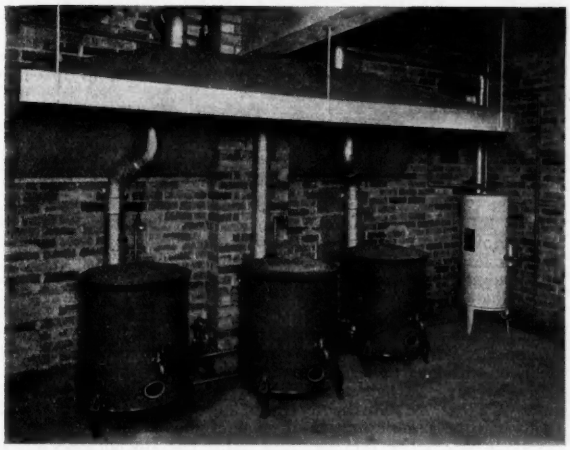
Her Culinary Training with the Harrogate Gas Department, where she was formerly an employee, is helping Mrs. O. V. Roberts to run a canteen at Harrogate for men of the Services who are passing through or staying in the town. Under her control are two cafes, each with its own kitchen, and she has organized the services of 150 lady helpers to deal with the 150 or 200 men who call daily for refreshment or rest. All meals at the canteen are served free but soldiers may place a contribution in a box provided on leaving.

There is no Stopping the run of successes of Cardiff Gas Athletic Club boxers. They accomplished a fine performance at Nottingham on Jan. 20, when they won four of their five bouts against the Raleigh Athletic Boxing Club. Two of the Cardiff members—Cyril Gallie and Dave Forward—won their bouts inside the distance. Gallie knocked out in one round his opponent, A. Parker, the Midland feather-weight champion. The bout was scheduled for four three-minute rounds. It lasted two and a half minutes. Dave Forward beat J. Thornhill, the Midland junior champion and 9st. 7lb. British finalist.

Gas and the A.R.P. Services

The war has given birth to an entirely new field of service for gas in the preparations which have been and are still being made to cope with the possible results of air raids.

The example set by a large coastal town, famous not only as a residential district but, in happier times, for its natural holiday attractions is typical of many others where the local gas undertaking has approached the subject with initiative and understanding. The uses to which they have put modern gas equipment are many and varied. The police have been provided with a cleansing station to guard them against the dangers arising from contact with poisonous gases. Three gas-heated boilers have been installed for decontaminating their protective clothing, while an "Equator" storage heater (manufactured by Richmonds Gas Stove Company—Radiation, Ltd.) delivers hot water to showers for the



Three gas-heated boilers and an "Equator" storage-heater meet the requirements of a Police cleansing station, the former for decontaminating clothing and the latter for supplying showers for the personnel

station personnel. The public authorities also throughout the area served by this gas undertaking have a number of such cleansing stations, all of which are supplied by gas appliances for the use of all the Corporation employees engaged on A.R.P. duties. The Fire Services in this (as in every other) district have been considerably augmented and decentralized, and here again gas plays an important part in providing for cooking for these men, as well as for their hot water supply. Not only in the chief offices of the A.R.P., but also in the Warden's Posts, gas is providing warmth for those doing duty over the 24 hours.

This undertaking has also provided space-heating equipment for those who are standing by the sirens. In addition to first-aid centres where hot water is in constant demand, there are also a number of British Red Cross depôts where voluntary members are preparing bandages, underclothing, splints, &c., for the hospitals, and for this purpose they have been loaned large houses, all of which have been heated by either gas fires or radiators, together with appliances for tea-making.

The gas undertaking responsible for this work (and we have only commented upon the fringe of its war-time activities) is not situated in a vulnerable area and in consequence has been called upon to cater for many evacuated businesses, into whose buildings much gas heating and cooking equipment has been installed.

Shrewsbury Lighting Contract

The Shrewsbury Town Council has agreed to make an inclusive payment to the Shrewsbury Gas Light Company to compensate for the suspension of the contract for street lighting since the beginning of the war. The payment is based on a reasonable return on capital outlay on gas plant, lamp standards, and equipment, and on the cost of repairs and maintenance of £270 per quarter. The standards and equipment are the property of the company and are maintained by them. The Lighting Committee reported that the suspension of street lighting would show an estimated saving during the current financial year of about £2,500.

In reply to Councillor B. D. J. Hayes, the Town Clerk said their contract with the Gas Company was a contract not only for the supply of gas, but also for many other items of service.

The Mayor observed that the Gas Company had treated the Council very fairly. They had to realize what the Company had standing idle for the duration of the war.

The Gasman

When the news reached us of the sudden death of Mr. W. W. Townsend, which was recorded in last week's issue, we had in type some clever verses for publication in that very issue over the signature "W.W.T." We do not know how many of our readers would have attributed the verses to Mr. Townsend's pen. We think their reproduction this week is a fitting tribute to a side of his character of which perhaps many were unaware.

The gas man is a tarry bloke
Whose joy it is to draw and stoke;
An upright sort of man is he,
As vertical as he can be.
Though intermittent meals he eats,
Continuously of gas he bleats.
No rude remarks of any sort
Can draw from him a hot retort,
Although a staff which does not please
*Can draw from him a little breeze.**
If horizontally inclined,
His tar is thick, but not his mind†:
And if you curse him, with a frown,
He does not take it lying down;
In fact, unless he's been belied,
His language might be purified.
Examiners, with lots of culture,
Might find at least a trace of sulphur;
But, though with therms he is replete,
It takes a lot to raise his heat;
Unless you say to him in joke
Go eat a peck of (graded) coke,‡
(Allow for drinks, say, half a litre§
Percentage error in my metre).¶

* 99%. † Saturdays excepted. ‡ 3s. 4d. per ton extra, F.O.B., A.F.S., R.A.S.C., A.R.P., F.A.N.Y. Dehydrated 6s. 8d. extra, nett and naked in buyers' casks or butts. § 32 oz. strength. ¶ Tomfoolery Regulation Act, 1930. Sale of Bass Act, 1880.

Gas Classes for Liverpool Children

Classes for non-evacuated school children are being held by the Liverpool Gas Company at Radiant House in co-operation with the Local Education Authority. The course extends over six weeks, and besides the cooking of economical dishes, the syllabus includes by-products, manufacture of gas, heating, hot water, how to read a meter, &c. Appropriate films are shown to link up with the subject under discussion. Our photograph shows some of the children under instruction

Results at Horncastle

The accounts of the gas undertaking for the year ended March 31, 1939, presented to the Gas Committee of the Horncastle U.D.C., show receipts totalling £4,167 and expenditure of £4,036, giving a loss of £131. The Committee recommended the Council to increase the price of gas by 5d. per 1,000 cu.ft. as from April 1, 1940. This was agreed to.

Fuel Supplies for Gas Producers

Official Specification for Transport Operators by Coal and Carbonization Industries

TO encourage the development of the use of producer gas for motor transport, the coal and carbonization industries set up a commercial and technical committee under the chairmanship of Mr. Herman Lindars, who is also Chairman of the Council of the British Coal Utilization Research Association. The constitution of the Committee is as follows :

Chairman:

Mr. Herman Lindars.

Members:

Mr. W. Boon	London and Counties Coke Association.
Colonel W. A. Bristow	Low Temperature Coal Distillers Association of Great Britain, Ltd.
Mr. E. N. Chalmers	Midland Counties Colliery Owners' Association.
Mr. R. Clive	South Yorkshire Coal Owners' Association.
Mr. D. H. Currer-Briggs	West Yorkshire Coal Owners' Association.
Mr. W. Diamond	Durham Coal Owners' Association.
Mr. W. J. Drummond	Northumberland Coal Owners' Association.
Mr. R. W. Foot, O.B.E., M.C.	London and Counties Coke Association.
Mr. Edmund Hann	Monmouthshire and South Wales Coal Owners Association.
Mr. G. A. Hebden	South Yorkshire Coal Owners' Association.
Mr. P. E. Holden	Monmouthshire and South Wales Coal Owners' Association.
Dr. Idris Jones	Monmouthshire and South Wales Coal Owners' Association.
Mr. E. B. Johnson	Monmouthshire and South Wales Coal Owners' Association.
Mr. A. H. Middleton	Coke Oven Owners' Association.
Mr. J. R. Wilson, O.B.E.	Lothians Coalowners' Association.

This Committee, which is representative of both actual and potential suppliers of producer gas fuel, is dealing with the long range problem of building up supplies of fuel to enable the use of producer gas to be developed on a large scale without fear of shortage of supplies and also with the more immediate problem of ensuring that the gas producer units now being placed on the market should be kept supplied with the right fuels.

In connexion with this short range problem the Committee has drawn up a specification laying down the characteristics of fuels which can be expected to work satisfactorily in producer gas units sold by recognized manufacturers and dealers. The Government Committee, under Sir Harold Hartley, has emphasized the importance of using only the correct fuels if success is to be assured.

It is also recognized that, from a commercial point of view, transport operators will expect a uniform price and distribution policy such as they enjoy with liquid fuels and it is understood that the Committee may shortly be in a position to make an announcement in this connexion.

Producer-Gas Vehicles

Many Firms Starting Manufacture

On the committee stage of the Gas and Steam Vehicles (Excise Duties) Bill in the House of Commons last Wednesday, Mr. Ellis Smith moved a number of amendments designed to reduce the duty on vehicles converted to use home-produced fuel.

He submitted that the Ministry of Transport was discouraging rather than encouraging the use of producer-gas propelled vehicles. Pressure was being brought on firms to send their goods by rail rather than by road. Omnibuses in the provincial areas ought to be converted to the use of producer gas so that better services could be provided at a time when petrol was rationed.

Mr. Bernays, Parliamentary Secretary to the Ministry of Transport, said that the Government and those supporting the amendments had the same objective of encouraging the use of producer-gas as an alternative fuel for transport. The amendments sought to provide further tax concessions for users of producer-gas. It would be impossible in these days for the Chancellor of the Exchequer to take action which would deprive him of a substantial amount of revenue. One great inducement to conversion to gas propulsion would be the fact that the fuel would be unrationed. He believed that the opportunity would be seized by both hands.

"I am informed by the Ministry of Mines," said Mr. Bernays, "that there have already been 450 inquiries about this new apparatus, and the Department have reason to believe that some 20 firms have already decided on manufacture.

"These facts show that manufacturers are ready to respond to the needs of the situation and that already we are in sight of achieving a very real increase in the production of gas-propelled vehicles, which is the objective of both sides of the House."

PRODUCER GAS FUELS COMMITTEE OF THE COAL AND CARBONIZATION INDUSTRIES
SPECIFICATION No. 1 FOR TRANSPORT PRODUCER GAS FUELS

Item.	Limits.	Tolerance.	Method of Test.
1. *Agglutinating Power* ...	Below 1.	Nil	B.S.S. 705
2. *Swelling Number*	1	Nil	B.S.S. 804
3. *Tar Yield*	Not to exceed 0.030% (approx. 11 oz. per ton)	0.005%	(*See* Note *b*)
4. *Screen Analysis*—			
i. Size	Upper limit not to exceed ¾ in. Lower limit not less than ⅛ in.	(*See* Note *c*)	B.S.S. 410
ii. Size Ratio	Not to exceed 3 : 1 Not to be less than 2 : 1	(*See* Note *h*)	Method of Sampling and Sieving. B.S.S. (Draft only).
iii. Dust Content ...	Not more than 3% below 10 mesh		
5. *Reactivity*	Not more than 0.041 C.A.B. Natural Fuels	0.002	C.A.B. Test (*See* Note *d*).
	Not more than 0.030 C.A.B. Carbonized Fuels	0.002	
6. *Ash Content* (dry basis) ...	Not more than 4% Natural Fuels	1.0%	B.S.S. 735
	Not more than 6% Carbonized Fuels	1.0%	B.S.S. 735
7. *Total Moisture* (as received)	i. Normal Fuels not to exceed 10% (*See Note e*)	1.0%	B.S.S. 735
	ii. Specially dried Fuels not to exceed 4% (*See Note e*)	1.0%	B.S.S. 735

NOTES.

a The foregoing specification is applicable to the fuels as delivered. The sampling method should comply with the requirement of B.S.S. 735 as regards weight of sample and number and weight of increments.

b The tar content of fuels suitable for gas producers is too small to be determined by the usual methods such as the Gray King assay. A special method developed by the Fuel Research Station, or the steam distillation method, may be used. The figures for maximum tar content laid down in the specification are based on the assumption that the unit is provided with a gas cleaning system of reasonable efficiency.

c The upper limit is defined as the largest British Standard Test Sieve on which not more than 5% of fuel will remain. The lower limit is defined as the smallest British Standard Test Sieve through which not more than 10% will pass.

d For a description of the test procedure, *see* Mott & Wheeler, "The Quality of Coke," pp. 167-9, and for fuller details *see* "Fuel in Science and Practice," 1937, Vol. 16, p. 359.

e The specification provides for two types of fuel described as "normal" and "specially dried" respectively. Gas producers using filtering systems which are liable to contamination or choking by condensed moisture require specially dried fuels for satisfactory operation. Those using steam or water injection can, in general, use normal fuels, *i.e.*, those of a higher moisture content.

f The sulphur, chlorine, and fluorine content should be as low as possible, but the data available are insufficient to lay down any maximum figure.

g No figures have been laid down for bulk density. This varies from 50 lb./cu. ft. for anthracite, down to 19 or 20 lb./cu. ft. for low temperature cokes. The capacity of the fuel hopper is clearly dependent on the bulk density of the fuel used and it is anticipated that plant manufacturers in Great Britain will design their hoppers for a bulk density of 25-30 lb./cu. ft. for normal refuelling frequency.

h The present specification is not applicable to briquetted fuels and a separate specification referring to such fuels will be issued in due course.

i The present specification has been drawn up in the light of the best information available to the Committee and the recommendations of producer gas plant manufacturers. It will, however, be subject to revision from time to time as further operating experience is gained.

j The Appendix to the Report of the Government Committee on the Emergency Conversion of Motor Vehicles to Producer Gas includes a provisional specification of fuels for use in the Emergency Producer designed by that Committee.

There Must Be No Standing Still

Towards the end of last year we recorded impressions by an observer on the "JOURNAL" staff concerned largely with the hire-purchase question. In the following article he records further impressions from many contacts with gas undertakings of all sizes and with makers of gas appliances. Hire-purchase facilities are returning—but very gradually. Sales activities are increasing—but far too slowly. And what of "the Truce"? Is it worth anything? These are some of the leading topics of the day, and the impression gained is that a very great deal remains to be done before the Industry can be said to be "carrying on" even to the extent that wartime restrictions would permit.

CIRCUMSTANCES have changed a good deal since we last dealt with the question of the continuation of hire-purchase arrangements for gas appliances. Rationing has been discontinued, evacuation problems have been straightened out, prices of competing fuels have been increased and the so-called "truce" between gas and electricity has been found to have serious implications for future progress unless treated only in a very broad manner. Some gas undertakings which suspended the instalment selling of appliances last September have resumed such facilities, but there is a great need for wise salesmanship if gas is to hold its own as Public Servant No. 1 and the hard-won markets of the appliance manufacturers are to be retained. It is deplorable that in these days any undertaking should talk of closing its showrooms or curtailing its sales forces, for there never was a time when the need for watchfulness was greater than it is to-day.

So far as we have been able to discover anything about the "truce" between gas and electricity we find very little indication in the Industry of any enthusiasm for it. It had a useful origin, it is true, in the joint effort which the sister industries successfully made to obtain some alleviation of rationing. The electricity industry probably visualized it all along as having no other object in view than that, and are now acting accordingly, while some gas salesmen are still trying—to the disadvantage of gas—to fulfil what they deem to be their part of a "gentlemen's agreement." A broad idea of what some of the leaders of the Gas Industry think of the "truce" can be gathered from a perusal of the report of the recent annual meeting of the British Commercial Gas Association. There is a great deal of uncertainty as to exactly what the "truce" does mean, but we do know of two purely local interpretations of it. A truce has been arranged at Manchester between the gas and electricity undertakings whereby neither side will substitute appliances during the period of the war except in unusual circumstances. The other case is Croydon, where the company owned gas undertaking and the municipally owned electricity department have agreed not to displace each other's cookers.

Electrical Attitude towards the Truce

Electrical Trading for January sums up the electricity industry's attitude towards the truce in two sentences: "The 'truce' with the Gas Industry has had a depressing effect. There is an increasing weight of opinion that overlapping of sales efforts cannot be avoided and the scheme is unworkable." In the same page it records that more electricity supply authorities are resuming general sales facilities. Lichfield and Rawtenstall Corporations are again offering hire-purchase, Glasgow has reintroduced electric cooking demonstrations and Swansea is considering the planning of new showrooms. Of even greater significance is the statement that plans for new expenditure on publicity and propaganda—a large part of which will be allotted to domestic appliances—are being completed by the Electrical Development Association, whose object is to keep a normal quota of domestic electric appliances in service and to facilitate installations in new houses and where there are changes of tenancy.

Urging the need for regular discussions on commercial and sales policies, *Electrical Trading* points out that every one of the reverses which the electricity industry has faced since September (rationing, black-out, loan difficulties, tariff increases and non-aggression pacts) has fallen heaviest on the sales side. It also discusses at length the operation of war-time hire-purchase schemes and says that shorter credits and higher deposits are eliminating the bad payer. Underlying the whole business is the truism that no genuine customer really likes to be in debt, and all hire-purchase terms should start with the idea that the buyer is just as much concerned as the seller that his appliances shall be paid for quickly.

For those who regard the war as an occasion for relaxing their sales activities the so-called "truce" is a very good excuse for sitting back and letting business slide. For those who want to carry on business as usual it is a little irksome, but it is pretty evident that it is not to be taken too seriously; it is certainly not being interpreted too literally by the electrical interests. From one provincial town we learn that the electricity industry is not observing the "truce" recently agreed upon in the area. Local advertising is being done and the usual attempts are being made to compete fully with gas fires and cookers. Reports from travellers confirm a similar state of things elsewhere. Canvassing is very vigorous in the electricity industry, whereas in the Gas Industry depletion of staffs by the calling up of young men on the sales staffs has led to a considerable cessation of effort on the part of many gas undertakings in canvassing potential users of gas consuming apparatus. The electricity people have already, with some success, employed temporary staff in this connexion, and it is suggested that the Gas Industry should do likewise. The desire seems to be to continue competition rather than observe the "truce," which certainly seems to be a better method than furthering a policy of negation in trying to get both sides to do next to nothing.

Undertakings which persist in withholding hire-purchase facilities and generally let sales slide will in time render useless much of the work done by the advocates of smoke abatement, and will also rob the fire and cooker manufacturing industry of much of its hard-won market. Most of the objections which such undertakings raise to the continuance of peace time enterprise have already been dealt with in the "JOURNAL." A new one is that the considerable advances in the price of gas are driving people back to other fuels. They appear to have overlooked the fact that domestic coal has gone up in price and that paraffin is about 40% dearer than before the war, to say nothing of the increases in the charges for electricity. No one, so far as is known, has yet made a scientific investigation as to the change in the relative costs of heat units from different fuels as between peace and war time, but it is possible that such an investigation would show that there is little, if any, ground for the argument that any price changes have caused a wholesale change from one fuel to another.

Resumption of Hire Purchases

Manchester was among the undertakings that discontinued hire-purchase terms on the outbreak of war except in special cases, but by the beginning of December steps had been taken to reinstate slightly modified terms to meet the present situation. Croydon is another undertaking that has seen fit to return to something approaching "easy terms," appliances now being offered on the basis of four quarterly instalments. Apart from the "truce" with the electricity department, efforts are being made to conduct "Business as Usual" at Manchester during the war. The average consumption of gas by automatic meter consumers at Manchester is 64½ therms per annum, and there are 146,000 of these consumers. There is thus an ample margin between this consumption and the minimum of 100 therms under the now-abolished rationing scheme provided for in the Fuel and Lighting Order. These consumers would, in any case, of course, have been exempt from the rationing scheme, but it is considered that it would not have been an abuse of privilege to attempt to increase the sales of gas to the limit of the minimum ration. There is similar scope in many cases among the ordinary meter consumers. Apart from the advantage to the Gas Industry of endeavouring to carry on reasonable business, it is realized that the appliance manufacturers should be considered. After all, gas undertakings represent their retail organization and with a spirit of co-operation and the formulation of such selling terms as appear reasonable in the light of war experience there is no reason why a certain volume of good business should not be transacted.

Discussing the effects of the increase in the price of gas, the manager of another large provincial gas undertaking told a "JOURNAL" representative that there was no evidence of people being driven to other fuels, either in his own area of supply or in neighbouring districts. Excessive increases might tend that way, but he had heard of none in his part of the country, and he thought it was more of a fear than a fact at present. Consumption of gas in this particular district, where there are fewer evacuees now than there were in the first three months of the war, showed an increase every day for the first half of January, despite the fact that the price has been raised by a penny per therm. Like a great many of his colleagues, this same manager is opposed to the idea of a "truce" with the electricity industry. He deprecates the notion of a suspended fight, particularly in view of the general good spirit existing between the two industries. He

thinks, too, that the idea of a complete cessation of effort by both industries is held only by the less reflective members of the Gas Industry as a ready reason for pursuing a policy of inactivity. This may apply to some extent in the electricity industry also, but he was of the opinion that in time such a view, however stupidly held, would tend to do much damage where one industry was more active than the other.

It is essential to keep staffs active and up to strength to avoid any partial stagnation of effort consequent upon the calling up of young men from the sales departments. In the area we have just been discussing the Company has engaged young women to continue canvassing and demonstrations and sales generally on a definitely "duration" basis, so that the jobs will be available for the men who return from the Forces.

In many places there is actually an improved market for gas appliances, in that numbers of families find themselves in a better financial position than before the war, and there also remains a solid body of potential buyers whose position, if affected at all, is affected only to a slight extent. War conditions have created new types of hire-purchase risks which may need closer examination than in peace time, though actually, when properly handled, they do not involve any greater risks. In a small number of cases where a company has been unable to grant normal hire-purchase terms it has recommended simple hire, with full facilities for transfer at any time to hire-purchase if circumstances change sufficiently to justify it.

A north-east coast undertaking reports that on the industrial side it is extremely busy, and on the domestic side it has maintained its position better than many undertakings. "There is, however," continues the report, "the necessity for preparatory work in the hope of an ultimate and lasting peace. We will have to conserve as much as possible of the industrial load in the change-over to peace production, if it is providentially a change-over and not a complete slump, and to extend it to make up for the inevitable losses. We have to maintain the domestic load in the face of evacuation, economizing, and the threat of rationing, and to be ready to work for its large-scale extension as soon as circumstances will permit."

What Electricity is Doing

The electricity industry is determined to get its cooker, water heater, and wash boiler sales going again, and it is not likely to allow any narrow interpretation of the "truce" to stand in the way. Last month the Cooker Committee of the Electrical Development Association, representing supply authorities and manufacturers, passed an important resolution, afterwards approved by the Executive, in the following terms: "That the provision of cooking facilities is a public need, and hire and/or hire-purchase schemes for electric cookers should be continued on terms and conditions which are not less favourable than those offered by gas undertakings for gas cookers in the same area." A statement on similar lines was issued a few days later by the Electric Water Heater Manufacturers' Association, representing fourteen leading firms.

Simple hire, hire-purchase facilities, demonstrations, and other normal activities are being resumed in many sections of the electricity industry, and advertising is being developed on a large scale. Hire-purchase in the electricity field is reported to be settling down satisfactorily under the war-time terms instituted by the manufacturers and the finance companies. One large electrical appliance manufacturing firm announces a scheme for 15% deposits, with periods limited to 24 months for cookers and appliances, no hirer or guarantor under 30 years of age being accepted.

It is realized that the public nowadays are being called upon to restrict their spending to necessities, but there is nothing in the national economy gospel which conflicts with the continued buying of domestic gas appliances. Indeed, it may well be that an endeavour to carry out the "Business as Usual" idea as far as circumstances will permit will be one of the biggest contributions to the national economy. After all, there must be an end to every war, and if the Gas Industry were to let things slide to too great an extent the reconstructing that must be done later on would be too difficult to contemplate. Suspension of trading facilities is contrary to the desire of the Government that there shall be as little interference with normal trading conditions as possible. Unless appliance sales are maintained manufacturers will be faced with the undesirable prospects of discharging skilled and other workers and of allowing research work to be held up and plant to stand idle.

Feeling grows stronger than ever among appliance manufacturers on the much discussed subject of standardization of prices of hire, hire-purchase, and cash sale rates. As is well known, some undertakings base their price policies on the principle of helping the consumer to acquire the most up-to-date and efficient gas apparatus at the lowest possible price, relying on security of tenure and the revenue from the gas sold for use in the apparatus quarter by quarter and year by year. Other undertakings appear to adopt the policy of assuring that the prices charged for all appliances used on the district shall cover the cost of running their showrooms and maintaining their sales organizations. It is outside the province of this article to discuss in detail which of these policies is the better. The "JOURNAL" has often enough expressed the opinion that this is one of its outstanding problems which is often raised but far too often shelved.

Some remarkable variations in prices in different districts were quoted a few months ago, of which the following are examples:

	Maximum Fixed Price.	Minimum Fixed Price.	Difference.
	£ s. d.	£ s. d.	£ s. d.
Multi-point heater ...	26 0 0	13 10 0	12 10 0
Sink heater	6 15 0	4 0 0	2 15 0
Cooker	15 0 0	11 0 6	3 19 6
Cooker	17 10 0	12 16 6	4 13 6
Storage heater ...	11 12 9	7 0 0	4 12 9

It is not necessary here to recall all the complications and reactions likely to be aroused among consumers who discover such wide variations in the prices of identical appliances and find that they have, in some cases, paid pounds more than other people for the same goods and service.

Pro-Gas, if not Anti-Electric

The maintenance of the domestic lead is of supreme importance in these days, and it was for that reason that last year's B.I.F. Gas Conference was devoted to that theme, with members of the Society of British Gas Industries following on after the supply side had discussed the question. Unless the Gas Industry, through its sales organizations as a whole, locally and nationally, maintains its sales activities to a much greater extent than has been apparent since the outbreak of war, bringing the service of gas to the notice of the public, it is the opinion of many thinking men that, if the war is to go on for any length of time, it will find at the end that it will not hold that strong position of service and utility that it held before the war began. As a whole we need not be anti-electric, but we can be pro-gas, even in war time.

A leading manufacturer the other day cited to us the case of an industrial area where there are a lot of young people, many of whom are earning better money than before the war, but are not certain how long it will be before their men folk have to join the colours. These people want gas appliances and are able to pay a reasonable rental, but they are not prepared to enter into long-term hire-purchase contracts. Here, he pointed out, was a case for simple hire, with a rental large enough to cover the total cost of the appliance in five years, leaving the consumer at liberty to return the appliance after renting it for a year or longer. This new form of simple hire is really hire-purchase without the consumer realizing it.

While it would be difficult to set up standard prices for appliances throughout the country, it is suggested that a good start would be to aim at regional standardization, and it is a point that might well be discussed by all the district gas organizations.

The profit on appliance sales is, after all, only a small part of the revenue of a gas undertaking, and it is an open question how much the consumer should be called upon to bear of the costs of running the showrooms and their staffs. The essential thing is the maintenance of the sales of gas for domestic use, which can be achieved only when the sales of appliances are on a basis that is satisfactory to the manufacturer, the supply authority, and the consumer.

"Ascot" Crossword Competition

The presentation of an "Ascot" sink water heater to the winner of the crossword competition at Swansea, one of many organized throughout the country by Ascot Gas Water Heaters, Ltd., took place at the Swansea Gas Light Company's showrooms on Jan. 10. At a large gathering, Mr. A. H. Shepherd, the Showroom Manager, introduced Mr. W. H. Johns (Engineer and Manager), who observed that last June Swansea gas consumers were circularized with crossword competition forms, of which about 200 were returned. The outbreak of war somewhat delayed the adjudication, but all the sealed entries were submitted to Mr. Malcolm Smith, the Managing Editor of the *Evening Post*. Undoubtedly many entries had the successful solution, but the rules provided that the prize should be awarded to the first successful entry opened.

Mr. Johns expressed pleasure at the large attendance at the Wednesday afternoon cookery lectures. In these days of rationing, it behoved all to make the best use of the foods available, and to see they were adequately and properly cooked.

Mr. L. Mandy, technical sales representative of Ascot Gas Water Heaters, Ltd., said they were far removed from the old days when people relied on coal-fired appliances for their hot water, and to-day they were able, with the aid of gas, to obtain all the hot water required, immediately without storing it.

The Swansea Gas Light Company have undertaken to fix the "Ascot" sink heater free for the successful competitor.

The Gas Companies' Protection Association

The Forty-Second Annual General Meeting of the Gas Companies' Protection Association was held at Caxton Hall, Westminster, S.W. 1, on Tuesday, Jan. 23—Mr. F. G. BREWER (South Metropolitan Gas Company), Chairman of the Committee, presiding.

The SECRETARY (Mr. R. Girdlestone Cooper) read the notice convening the meeting, after which the CHAIRMAN said that the President of the Association (Mr. Frank H. Jones) much regretted that he was prevented from attending on account of another important engagement. Mr. Jones had asked the Chairman to convey to the meeting his greetings and best wishes. The Chairman also announced apologies for absence from other members.

Mr. W. PHILLIPS (Luton) expressed on behalf of the meeting their appreciation of the President's message and suggested that an expression of gratitude be conveyed to Mr. Jones for his continued interest in and work for the Association.

The Chairman's Address

The CHAIRMAN, moving the adoption of the Committee's Report and the Accounts for the year ended Sept. 30, 1939, said: We are meeting later than is our practice, later, indeed, than is prescribed by the Association's rules. To have invited you to come at an earlier date would, it was felt, have been inconvenient to you, very busily engaged as you all must have been in your own works and offices, and the Committee therefore took the responsibility of deferring until now the date of our Annual Meeting.

Your Committee's Report begins with a reference to the legislation which arose, and to some extent preceded, the outbreak of war. The public at large must have been surprised, and perhaps a little bewildered, by the legion of Acts and Orders which seemed at the very instant to spring into operation. Of course, Defence of the Realm must mean in some respects restriction of the individual, and experience may well allow or require some relaxation of what was originally enacted; but I believe that the moral effect of this evidence of preparedness and the confidence which it induced were of no small value in the opening days of the war. That there should be criticism of some of the enactments was inevitable and, indeed, right, for it would be unwisdom not to adjust them to experience; but it can, I think, be said that there has been little criticism which has not been friendly and designed to be helpful. The nation must be, and is, prepared for sacrifice, and is animated by the one thought—to see things through in the best possible way. Equally, I think it may be said, the Government has not been reluctant to listen to criticism when backed by experience of the facts.

An instance which at once comes to mind as directly affecting our Industry is the Fuel and Lighting Order. The National Gas Council, on which our Association is represented, lost no time in dealing with it, with the results of which you all know. It was rightly argued that in all areas the lighting restrictions, and in many areas evacuation as well, had automatically effected all the rationing at which the Government then aimed. The Council, to whom—and to Sir David Milne-Watson in particular—the whole industry is indebted for their cogent endeavours, succeeded first in securing the exemption of slot meter consumers; then consumption for all was permitted up to the quantity consumed in the standard year to the end of June, 1939; and finally, rationing was withdrawn for all, at least for the present. The Secretary for Mines has, however, insisted that the machinery of rationing must be kept in being, ready to be applied at short notice; and, as you know, a new form has just been prescribed which undertakers are required to prepare, so far as it can be prepared before a percentage of ration has been laid down, in readiness for issue should a degree of rationing at some time be enforced. In the negotiations with the Mines Department the Gas Industry took the initiative. As I think will be admitted, it had the best case on national grounds; but it cannot be doubted that the negotiations were greatly facilitated by the fact that very soon the Gas Industry and the electricity supply interests joined forces and a joint memorandum against rationing was presented to the Minister, with the success I have already mentioned.

The Gas Charges Order

Of another wartime enactment, the Defence (Gas Charges) Order, 1939, it may, I think, be said that, although in certain respects it needs to be amended or supplemented, it is at least an official recognition of the importance of the capital structure of the Gas Industry. As you know, it applies in its main provisions to maximum-price and sliding scale companies and provides that when in any quarter the manufacture of gas does not exceed 95% of the quantity manufactured in the corresponding quarter of 1938, the pre-war price of gas may be increased by $\frac{1}{10}$d. per therm for every 1% decrease of output, and in calculating the authorized dividend such increase shall be taken into account only to the extent—an important extent, it is true—that the ordinary dividend payable shall not exceed 1% below the average for the three years 1936 to 1938, or, if the average did not exceed 5%, then either that average or 5%, whichever is the less. Of course, increases of price may be justified and, indeed, necessitated by other causes besides decrease of output, and it is to be hoped that this and other points will not be overlooked by the Board of Trade.

With regard to what I may call the principal Act, the Civil Defence Act, 1939, while we are never likely in this world to get all that we should like—if it were otherwise, and if wishes were omnipotent, we should have wished away the necessity for that Act at all—we must recognize that the public utilities were successful in securing a number of valuable protective measures. To many undertakings the Act has meant heavy expenditure, most of which has to be met from their own resources and from the sale of their services. For certain works there is, it is true, a grant of 50%; but expenditure for which such a grant is made will presumably be considered a capital charge and, therefore, not admissible as a deduction for income tax. The net benefit is, therefore, considerably less than 50%. Many of the measures taken are as essential to the life of the community as are the other great defence services, such as the Ambulances and the Fire Brigade, and that is a point which, I submit, we may justifiably ask the public, and indeed the Governmental authorities, to bear in mind.

The restrictions on public lighting are a subject of interest to all, and the Association has been asked by members to advise upon them. Contracts and agreements vary, and it is, therefore, impossible to propose any universal procedure. Your Committee suggest that the best course is for each undertaking to negotiate a friendly settlement with the local authority concerned, if that has not already been done; but, apart from any question of law and legal precedent, certain principles may, I think, be properly suggested. The hire of the lamps and columns, unless there is express provision to the contrary, continues, and reasonable maintenance is required in order that deterioration may be prevented and the lamps brought back into lighting as soon as possible after the restrictions have been removed. Certain capital charges also will have been incurred which should justly be reimbursed. It is only equitable that the cost of these items should be borne by those on whose instructions the lighting was installed; and I am confident that this point of view should commend itself to the authorities.

There are many other topics arising from the war on which one is tempted to comment; but I must now turn to the paragraphs of the Report which deal with matters arising outside and before the war.

Income-Tax Negotiations

Of the Holding Companies Inquiry the Report says, I think, all that need now be said on a subject which, with the adjournment *sine die*, has become a little remote. The same remark cannot be made about the Income-Tax negotiations which a Joint Committee of the Association and the National Gas Council have continued with the Board of Inland Revenue. They have necessarily been interrupted by the war, but we may hope that they will be satisfactorily concluded at not too distant a date. Of one thing we may be sure, Mr. Botley, our esteemed Vice-Chairman and doughty fighter in this cause, will not lower his standard until he is satisfied with the results.

The Conjoint Conference has during the year again done valuable work as a parliament of the public utilities, and you may be assured that on all matters arising from the war the Conference has been constructively vigilant not merely in the interests of its constituent members but in the interests of the nation as a whole. Outside the war first place in the year's work should, I think, be given to the manner in which the Conference vindicated before a Joint Select Committee the rights of public utilities with regard to mains and cables in highways. As you know, this is a subject

which has been discussed for many years and on several occasions has seemed very near to agreement. But a miss is as good, or bad, as a mile on a highway as on anything else, and it is most satisfactory now to have the authority of the Joint Committee of both Houses of Parliament for the principle that the cost of removing mains and cables should be borne by the party responsible for the alteration of the highway which necessitates their removal or alteration and thereby entails the cost. The Committee's report pointed out that this would mean in almost all cases that the cost would be borne by the highway authority, since it was ordinarily on the authority's initiative that the alterations to the highway were undertaken. Moreover, the Committee recommended that the same principle should apply in the case of bridges.

It seems unlikely that in present conditions time can be found for general legislation to give effect to the Joint Committee's recommendation; but in the meantime all undertakers have been urged by the Conference to follow closely those recommendations when dealing with highway or railway authorities and to make no concessions other than those referred to in the Report. A clause on the lines of the Committee's Report has been drafted by the Parliamentary Agents of the Conference, and members who are promoting Bills or applying for Orders are advised to consider the insertion of this clause, with such modifications as are necessary in the individual circumstances. Copies of the clause can be had from our Secretary.

For the British Gas Federation the war has meant the abandonment, or at least the postponement, of some of the public functions and exhibitions with which its name has come to be associated. This year the William Murdoch Centenary would have been a high light. But otherwise the Federation continues to fulfil the valuable purposes of joint consultation and action for which it was formed. Outstanding in this, as it would be in any year, has been the scheme for the establishment of an autonomous Gas Research Board—a scheme which received the whole-hearted benediction of the Federation and which is now in being. Research has been aptly called the life-blood of industry, and we shall all expect, but with due patience, much from this new child, and we may hope mother, of invention.

Excellent progress had been made with the scheme for a permanent Gas Exhibit in the Science Museum at South Kensington and some models had already been prepared when war broke out, and work on the exhibit was necessarily suspended. As is indicated in the Report now before you, a question has arisen about the treatment of contributions for Income-Tax. Somerset House has stated that it is not prepared to allow contributions as a revenue item and, therefore, an admissible deduction. This view is stoutly contested by the Federation, and it is understood that a case will be brought forward to test the Inland Revenue's ruling.

Financial Position

To turn now to more domestic matters and to our family budget, you will, I know, be pleased to see that this year we have turned a deficit into a surplus of £119 19s. 3d. We endeavour—I hope with success—to work as economically as possible, for it is essential that we should build up our reserves against the day when, as in 1937, heavy and necessary expenses have to be defrayed for Parliamentary or other charges. Happily, we have had no abnormal expenses to meet this year, and our invested reserves have been increased to the substantial figure, at cost, of £2,486; and there is little depreciation now on that amount. But, if we have been called on to spend little, it has been a busy year for the Association's consultative service, as the Report indicates, and I know that you will join with me in thanking the Secretary and his staff for all the work they have done. In these days, when meetings of the full Committee cannot be quite so frequent, more than usual is apt to fall on the Secretary; and his best reward will be for members to add to their questions to him. After all, we all depend on each other's experience, and the exchange of problems and puzzles is of the essence of such an Association as ours. The days ahead cannot be easy, but they will be eased when, whether in industry or in the nation at large, there is willing co-operation all round; and happily there is abundant evidence of the existence of that spirit at the present time.

I now formally move that the Committee's Report and the Accounts for the year ended Sept. 30, 1939, be received and adopted, and that the Report be entered in the Minutes.

Mr. C. F. BOTLEY (Hastings), Vice-Chairman of the Committee, seconded the resolution and thanked the Chairman for his comprehensive survey of the Association's activities during the past year. His remarks would be particularly valuable to those desirous of having information who were not able to be present at that meeting. During the complicated times they were experiencing at the moment any authoritative statement was welcome. Mr. Botley remembered the different situation which existed in the last war, and it was interesting to recall that he had been one of those concerned in the initial steps taken by the Gas Companies' Protection Association with the object of remedying the serious troubles with which they were then faced. This time, however, the Government had its plans worked out in advance, which had the effect of steadying public opinion. Admittedly some of the schemes had been prepared by theorists and had caused a great deal of trouble with regard to completing forms, and so forth; but all those things time would doubtless correct. It gave everyone confidence to see how well the Gas Industry was prepared to face the situation and how well served it was by its National Bodies of which the Gas Companies' Protection Association was one.

Arising from the past organization of their National Bodies, went on Mr. Botley, it was as well to remind themselves that a separate body representing company-owned gas undertakings was accepted as necessary—which fully justified the continuance of the Gas Companies' Protection Association for the specific purpose for which it was formed. He only hoped that fact would be recognized in the future. He could honestly say that he did not know what he would have done in the early days of the last war without the assistance of the Association.

The resolution for the adoption of the Report and Accounts was then put to the meeting and carried unanimously.

Elections

On the proposition of the CHAIRMAN, seconded by Mr. PHILLIPS, it was unanimously resolved to ask Mr. Frank H. Jones to accept the Presidency of the Association for the ensuing year.

The Vice-Presidents (Mr. R. Bruce Anderson, Mr. F. J. Bradfield, Sir Reginald Clarry, M.P., and Mr. A. A. Johnston) were re-elected en bloc on the motion of the CHAIRMAN, seconded by Mr. E. H. HARMAN (Commercial Gas Company).

The CHAIRMAN observed that five members of the Committee—namely,

Mr. R. J. Auckland (Cardiff),
Mr. H. E. Bloor (York),
Mr. J. B. Brown (Wandsworth),
Mr. D. H. Helps (Reading), and
Mr. F. A. Ricketts (Mid-Southern)—

retired under Rule 12 and, being eligible, offered themselves for re-election. A further vacancy had been created by the resignation of Mr. W. H. Johns, of Swansea, who felt that in these days it was impossible to give to the work of the Committee the amount of time which it merited. The Chairman said he wished to place on record the Committee's appreciation of Mr. Johns's sixteen years of service; he had been a very useful member of the Committee, and they always valued his opinions.

On the proposition of Mr. BOTLEY, seconded by Mr. PHILLIPS, the five retiring members of the Committee were re-elected, and it was agreed to leave it to the Committee to fill the other vacancy.

With reference to the re-appointment of the Association's Hon. Auditor, the CHAIRMAN pointed out that the accounts had been signed by his brother, Mr. G. Murray Burton, as Mr. Hyde C. Burton was serving with H.M. Forces.

Mr. F. A. RICKETTS proposed, and Mr. J. B. BROWN seconded, the resolution for Mr. Hyde C. Burton's re-appointment, coupled with a vote of thanks to him and to his brother for their services.

The meeting closed with a cordial expression of thanks to the Chairman on the proposition of Mr. PHILLIPS, which Mr. BREWER briefly acknowledged.

At the subsequent Committee meeting Mr. Brewer and Mr. Botley were unanimously re-elected Chairman and Vice-Chairman respectively for the ensuing year.

Midland Junior Gas Association

A meeting of the Midland Junior Gas Association was held at the Chamber of Commerce, Birmingham, on Thursday, Jan. 25, at 4 p.m. The Council had previously agreed that any meetings or business transacted prior to October, 1940, should be regarded as an extension of the 1938-39 Session, and the Chair was, therefore taken by Mr. A. W. Attwood (Coventry), President for that year.

Before opening the business of the meeting the President referred with regret to the death on Jan. 22 of Mr. James Hewett—a Founder Member of the Association and its first Hon. Secretary and Treasurer. He paid tribute to the pioneer work carried out by Mr. Hewett, and the members stood in silence as a mark of respect.

Mr. G. C. Pearson (Engineer-in-Chief of the Birmingham Gas Department) then opened a discussion on "Problems arising in the Gas Industry from Wartime Conditions," and during the discussion the following subjects were touched upon: Benzole and Toluol; the Development of Gas for Motor Traction; and Air Raid Precautions.

Among the 50 members present were Dr. C. M. Walter (Engineer-in-Charge of the Industrial Research Laboratories, Birmingham Gas Department) and Mr. T. F. E. Rhead (Chief Chemist of that Undertaking).

In view of the success of this meeting, it was decided to hold another in about a month's time.

Reconnaissance at Alloa Gas Works

A Paper Presented at a Recent Meeting of the Scottish Junior Gas Association (Eastern District)

By
ATHOL W. BROWN, Assoc.M.Inst.Gas,E.,
of Alloa

GENEROUS facilities have always been provided to our Association by Alloa Corporation Gas Department, and I am sure most of our members have had the opportunity of inspecting the gas-works during recent years. As a member, I was much impressed by the many interesting and up-to-date features of the works, but felt that they would have well repaid a closer study than was possible during a short visit.

In 1936 a complete new set of exhausters was laid down, consisting of two two-blade exhausters, each passing 100,000 cu.ft. of gas per hour when running at 85 r.p.m. against 30 in. W.G. pressure, each exhauster being driven by a horizontal steam engine of Bryan Donkin "D" type, 17 b.h.p.

Vacuum conditions at the inlet to these exhausters is not controlled by the usual type of hydraulic steam regulator, but by an Arca vacuum regulator.

With this type of control, a steady vacuum is maintained at the exhauster inlet, not by altering the speed of the drive, but by maintaining a constant engine speed and controlling by means of a double-seated valve actuated by the Arca regulator a return flow of gas from the outlet to inlet of exhauster.

The regulator conveniently fixed at the side of the exhauster consists of a vacuum gas panel and pilot valve. The actuating medium is water, which is admitted at a pressure of not less than 15 lb. per sq. in. through a water filter and pilot-valve to the pressure chamber controlling the movement of the by-pass valve. This is achieved by anchoring the top end of the valve spindle to a flexible diaphragm forming the lower side of the pressure chamber. From the pressure chamber the water passes to the release orifice of the Arca regulator, and so to waste.

The operation of this type of regulator is as follows: The control pipe is taken from the point in the gas main at which it is desired to maintain vacuum conditions—namely, the exhauster inlet—and, led to the vacuum gas panel of the regulator. Any variation from the desired vacuum causes a movement of the panel diaphragm, this movement being communicated to a pivoted lever one end of which covers or uncovers the water release orifice.

The action is as follows: Assuming less gas is being made and vacuum increases, this increase in vacuum is relayed to the control panel of the regulator causing the diaphragm to move inwards so lifting the lever pad off the release orifice and allowing the water to escape. The release of water causes a fall in pressure in the pressure chamber above the by-pass valve, equivalent to a reduction in its loading, so that the exhauster outlet pressure opens the by-pass valve and gas passes back to the inlet to maintain the desired vacuum conditions.

Conversely, should vacuum decrease at the exhauster inlet the by-pass valve is caused to close and reduce the quantity of gas being by-passed.

Adjustment of vacuum conditions is simply made by the turning of a nut, so altering the compression in a spring acting on a lever arm, the end of which covers and uncovers the water release orifice. The adoption of this type of regulator at this point has given entire satisfaction and no trouble. Experience has proved it much more sensitive and capable of controlling to finer limits—due to the lightness of the moving parts—than the hydraulic steam regulator.

Electro-Detarrer Plant

Advantages claimed for this plant might be worthy of repetition, especially those applicable to conditions at Alloa.

(1) Increased capacity and efficiency of the washing and scrubbing plant. This section of plant had reached the limit of its capacity during periods of maximum make, and it was considered—even having regard to the higher initial cost—preferable to install a plant capable of a tar extraction efficiency of over 99% to one of the more common types of tar extractors having very much lower efficiencies and much greater resistance to the gas flow.

(2) Entire elimination of tar passing forward to the dry purification plant. The detarrer was installed previous to the capacity of the oxide purifiers being increased by 100%. Nevertheless such advantages as reduced back pressure, greater efficiency of H_2S removal, reduced labour charges in removal of oxide from the boxes before the material has been charged to its maximum sulphur content, do not lose their importance.

(3) Improved conditions of by-product recovery. The recovery of benzole and sulphate of ammonia is practised at Alloa. Both these processes have benefited by the installation of the electro-detarrer, and this will be explained.

The plant is designed for the removal of tar fog from a maximum volume of 2,000,000 N.T.P. cu.ft. of gas at a maximum temperature of 70° F. and minimum pressure of 20 in. W.G. The correct position of the plant in our experience undoubtedly is between the exhausters and washers. The back pressure thrown by the detarrer has not exceeded 2-tenths W.G. when passing 1¼ million cu.ft. of gas per day.

The plant consists of one gas treating vessel and one high tension current generator set, the prime mover for the latter being a high speed steam engine.

The treating vessel is built of ¼ in. mild steel plates, welded joints, 5 ft. in diameter by 26 ft. high. The insulator chamber is situated at the top of the treater, containing a massive quartz insulator from which depends the central stay electrode. This central electrode of patented design, besides being a discharge agent, also carries the top and bottom framework between which the discharge electrode wires are tensioned by means of compression springs. Further, the central electrode acts as a stiffener preventing the possibility of the wire discharge electrode assembly swinging.

There are 22 discharge electrode wires of corrosion fatigue resisting alloy steel, each suspended in a 6¼ in. C.I. spun tube; the central electrode is housed in an 8 in. C.I. spun tube.

Generating Plant

The high tension direct current required for the process is provided by a simple generator set, direct current up to 30,000 volts being produced by two high tension generators connected electrically in series and driven in line through suitable insulated couplings by a vertical steam engine.

Each generator is of the protected type, having special armature windings so that each supplies its own field current. The generators are insulated from the bed-plate by means of porcelain insulators.

In the event of a sustained short-circuit the set is automatically shut down by a dash-pot controlled h.t. overload relay which is intercoupled with an electrically-operated automatic steam stop valve controlling the prime mover.

Should the high tension supply fail, alarm is given by a Klaxon type horn and a red light indicator.

The more common electric drive is in our case replaced with a 3¼ b.h.p. vertical steam engine running at 1,200/1,420 r.p.m. The power consumption of the plant under full load is about 2½ h.p., the steam consumption only amounting to 150 lb./hr.

Daily attention only entails lubrication of the steam engine, noting the correct current discharge, and temperature of the insulator chamber.

Once a fortnight the generator set is shut down to permit cleaning of the h.t. set, commutators, insulators, &c.; incidentally, this also presents an opportunity of testing the working of the automatic steam stop valve. Thirty minutes is all the time required for this operation.

At three-monthly intervals the plant is shut down, the treater opened and examined for tarry deposits, particular attention being given to the baffle bell below the insulator, and the bottom ends of the tubes.

Performance of Plant

This plant has been in continuous operation since August, 1937, and can truthfully be said to have been trouble free. On one occasion only was it found necessary to shut down the plant as a series of flash-overs was shown by the ammeter. The trouble was traced to a tarry sludge deposit adhering to the central electrode between the bottom of the insulator and the baffle bell below—this trouble is now eliminated by regular cleaning at three-monthly intervals.

Up to date, the only replacement required has been the coil of the magnetic valve controlling the steam supply to the prime mover. Due to the necessary close proximity of the magnetic coil to the steam line, the coil insulation was being softened and rendered faulty by the heat. However, this trouble has been successfully overcome by fitting a glass insulated coil.

The guaranteed tar fog extraction efficiency of the plant was 99.5% with an anticipated efficiency of over 99.8%. An average of several tests taken during the past month shows an efficiency of 99.7%.

The amount of tar in the gas at the outlet of the detarrer only amounted to 0.4 grain per 100 cu.ft.

The total actual working cost for one year, which included oil, steam, electricity, repairs and labour, amounts approximately to £68.

The volume of gas passed during this period was 348,783,000

cu.ft., so that the cost per 1,000 cu.ft. ot gas treated amounts to 0.0468d.

In 1937, one of the recommendations of a Committee of the Institution of Gas Engineers was that an all-round reduction of the sulphur content of town gas to 10 grains per 100 cu.ft. would represent an immediate advance which is both possible and strongly to be advocated.

The Factories Act of 1937 opened up a market for flueless heaters, and the present mode of house design also requires heaters of this type. Surely, then, it is the duty of every undertaking to take steps to ensure that their product is free from the impurity of sulphur to the utmost degree.

Other reasons for the removal of sulphur compounds from town gas, such as reduced corrosion of heating appliances, consequently less frequent cleaning required, improved appearance and longer life, and improving furnace atmospheres in the heat treatment of metals further emphasized the necessity for sulphur removal.

Recent technical contributions have once again brought to our notice the secondary aspect of benzole recovery—namely, extraction from the gas by the wash oil of a portion of the carbon disulphide, thiophen, and mercaptans.

In practice, it has been shown that a circulation of eight gallons of the wash oil per 1,000 cu.ft. of gas passing at a temperature of 20° C. is necessary for the absorption of benzene and of all the thiophen and its higher homologues, while for the complete absorption of carbon disulphide, a circulation of 32 gallons of oil per 1,000 cu.ft. of gas is required.

Since the primary function of benzole recovery is the production of benzole, the rate of oil circulation is not likely to exceed eight gallons of gas oil per 1,000 cu.ft. of gas, and, with this rate of oil flow, the extraction of organic sulphur compounds (comprising 80% carbon disulphide and 20% thiophen) should be:

Carbon disulphide, 25% of 80%	=20% of total
Thiophen, 100% of 20%	=20% of total
Total extraction of sulphide compounds	=40%

In Scotland our coals are notable for their low sulphur content. With benzole recovery and the correct rate of oil circulation an approximate reduction of 40% in the organic sulphur compounds can be accomplished. The amount of these impurities present in town gas can be reduced to less than the recommended 10 grains per 100 cu.ft. of gas with Scottish coals in general and benzole extraction.

At Alloa, 60% of the coal carbonized consists of Brairhall Washed Doubles, a coal well-known for its low sulphur content, the volatile matter driven off during carbonization only containing 6 to 7 lb. of sulphur per ton of coal carbonized.

The average H_2S content of the gas at the inlet to the dry purification plant is 472 grains per 100 cu.ft., which is low in comparison with the more common figures between 500 and 800 grains per 100 cu.ft.

The organic sulphur compounds are correspondingly low. At the inlet of the "Stator" type of oil washer for benzole extraction, the sulphur content is 8.3 grains per 100 cu.ft. of gas, and at the washer outlet this figure is reduced to 4.07 grains per 100 cu.ft., a reduction of fully 50% with an oil circulation of 4 gallons per 1,000 cu.ft. of gas passing per hour.

This low quantity of sulphur in town gas is surely a record in the Industry, and has been the practice at Alloa for four years.

In view of the figures stated, a special plant for the removal of sulphur compounds in town gas is not required. The fact that sulphur in gas can be reduced to a negligible amount at no cost by a process which in itself is capable of earning a profit, must be a compelling factor in favour of benzole recovery.

Sulphate of Ammonia

On taking up my duties at Alloa I was surprised to find what I considered to be an exceptionally high yield of sulphate of ammonia. For the past seven years the average yield per ton of coal carbonized has been 34.5 lb. and previous to that period an even higher figure was obtained.

This exceptional yield is due to the high nitrogen content of the coal carbonized but, I believe, can also be partially attributed to the very close supervision given to the plant, preventing any loss of ammonia from the waste gases, waste liquor, and devil liquor to go on undetected for any length of time.

To check the efficiency of the saturator or detect the possible leakage of ammonia gas direct to the waste gas pipe within the top of the saturator, a sample of waste gases is drawn off continuously from the waste gas outlet pipe immediately above the saturator and passed through a condenser coil placed in a barrel of water, so giving a small continuous flow of condensate, from which a sample can be obtained quickly at any time and tested for free ammonia. The test is simply carried out by taking 25 c.c. of the condensate and titrating with normal sulphuric acid.

The waste liquor from the free ammonia still is tested in the same way by taking a sample of liquor from the base of the still in preference to the actual stream of discharge water, so obtaining a truer indication of conditions inside the still at the time of testing.

The condensate from the liquor preheater heater is also tested to ensure that no leakage of ammonia liquor is taking place from the circulating pipes within the heater. The sample is taken from the seal pot overflow at the base of the heater.

By these simple tests taken three times per day by a junior assistant and also by the attendant at frequent intervals, ammonia losses are reduced to a minimum.

Discussion

Mr. **W. N. Baird** (Dunfermline) agreed that benzole extraction became an attractive proposition when dealing with gas with a high sulphur content when a reduction of 20 or 30 grains per cu.ft. could be obtained, but this did not apply in Scotland. In the case in question a reduction of about 4 grains was accomplished, and this, though giving a very low sulphur figure, was not necessary.

Mr. **T. P. Napier** (Kirkcaldy) thought that the Arca control on the exhauster would be wasteful on steam and asked what would happen if the water supply to the Arca failed.

Mr. **T. R. Sawers** (Perth) asked if a special cistern tank was in use for the Arca or if town water was used direct, also if copper pipe was used. He asked whether, if the detarrer had been installed before the erection of the additional purifiers, this plant would still have been necessary.

Mr. **J. F. Wilson** (Perth) said that the maximum temperature of gas at the detarrer was 70° F., and asked if there was any difficulty in keeping down to this figure in the summer time.

Mr. **Brown,** replying, agreed that the sulphur removal was of more moment in England, where the content was much higher than in Scotland. He said that they were willing to sacrifice steam for better control on the exhauster. If the water supply to the Arca should fail the valve would open; town water was used direct, and copper piping was used throughout on this installation. The purifiers would still have been necessary owing to greatly increased loads even though the detarrer had been installed before. They were able to work up their oxide to 45-50% sulphur content at one fouling. They had experienced no trouble in maintaining a maximum temperature of 70° F. at the detarrer even in summer, as they had ample condensing plant.

Scottish Junior Gas Association

(Eastern District)

Two Meetings of the Association have taken place since the outbreak of war and the attendance at both of these has been such as to warrant continuing activities as far as is practicable.

The first was held in Edinburgh in October, when there was a Paper by Mr. A. A. Mitchell, Engineer and Manager, Penicuik Gas Company. The second Meeting was held in Alloa in December, when Papers were presented by Mr. Athol Brown (Alloa) and Mr. Robt. Cowie, Jnr. (Hawick).

The Alloa Meeting took place in the Corporation Gas Department Showroom, and the visitors were afterwards entertained at tea by invitation of the Gas Committee. After tea, Mr. J. W. Napier (Engineer and Manager) addressed the company.

Mr. Napier, on behalf of the Alloa Committee, welcomed those present. He expressed the view that the assured strength of Industry depended upon youth and it was the duty of the Gas Industry to satisfy youth of a return of values for the responsibilities accepted. It was necessary to attract the best type of youth, not only on merit as regards experience and knowledge, but in particular for the possession of a personality of worth, inviting respect and confidence. The Gas Industry was a scientific industry, and the scientist from the technical colleges and universities would more and more become the controlling influence in administration and management of gas manufacture and the uses of gas. The most potent influence in the Industry of recent years was the increased amount of research work undertaken by the Institution and by gas undertakings, and manufacturing firms engaged in the Industry had carried out a very large share.

Mr. Napier stated that this was an age of business advertising and propaganda. The Gas Industry had been particularly fortunate in the past with the B.C.G.A. It had done good work generously and with efficiency. He thought, however, that the Association should be capable of doing even better work for the Industry than its present policy exhibited. Much of its work as a whole was directed, and in measure wrongly directed, in his view, to help individual undertakings, when many undertakings with their particular personnel and experience could accomplish their own advertising work much better themselves, and this was being done. He felt it necessary to criticize the Association's advertising matter, and say that much of it was of small value and ineffective. He expressed the hope that the B.C.G.A. would exert a new effort and one of a more complete national character. He would like to pay compliment to the high class advertisements of many gas apparatus firms.

Mr. C. D. Blackhall (Edinburgh), President of the Association, briefly replied on behalf of the Association and assured Mr. Napier of their pleasure at his presence.

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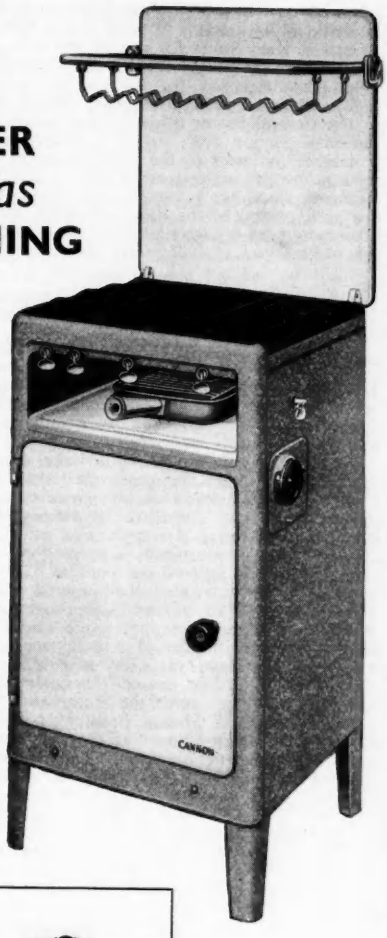

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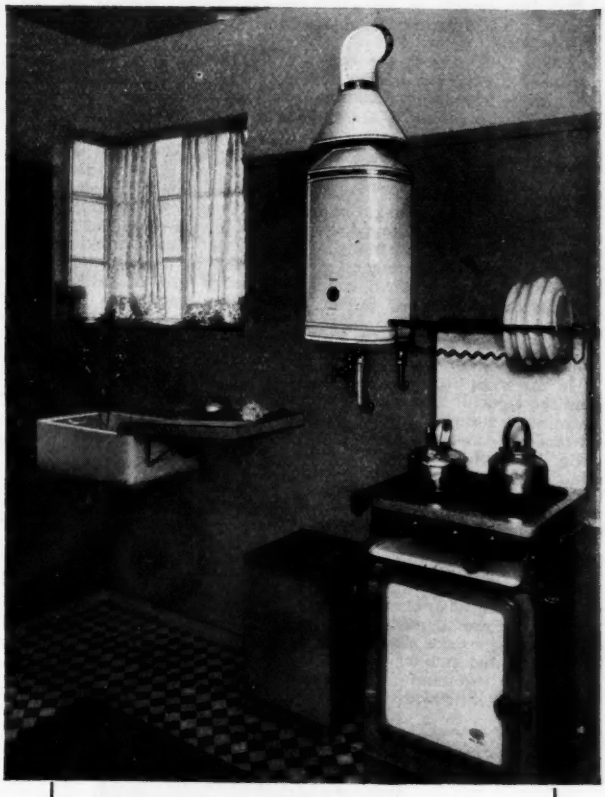

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Liverpool Company's New Stores

THE new stores of the Liverpool Gas Company, in Duke Street, which have recently come into full occupation, are the subject of an article in the January number of the Company's Co-Partnership Magazine, from which we reproduce the following notes.

For a long period, the capacity of the old stores had been seriously overtaxed, and the ever-increasing business of the Company made new accommodation a vital necessity. The floor space in the new premises is more than four times greater than that in the old.

The keynote of the new stores is internal efficiency, and in this respect it compares favourably with any building used for a similar purpose in the country. The building is divided into five sections—Gas Fitting, Simple Hire, General Stores, Sales, and Returns. The Gas Fitting Section stocks all the pipes and fittings required for the actual fitting of appliances. The General Stores Section stocks all pipes and castings used in main laying, and also many tools, medical supplies, &c., for use at the various manufacturing stations. The Simple Hire and Sales Sections stock all appliances and parts issued in connexion with simple hire or sales transactions. The name of the Returns Section is self-explanatory.

In the Sales Section (formerly known as the Showroom Stores) and the General Stores Section, on the main floor, are twenty-four large steel storage bins, each of which is capable of being subdivided into about seventy sections. These at present accommodate two thousand different types of goods. In the basement, which has the same floor space as the main floor, are eighteen large racks storing gas fires, water heaters, and radiators. The basement also accommodates a further three large steel storage bins. The total number of different items stored exceeds eleven thousand.

Stores assistants prepare jobs for issue to the gas fitters on the following morning. These jobs are "bagged" and placed on tables bearing district numbers. When the job papers are distributed they are so marked that they inform the fitters on which table their jobs are already assembled. The speed at which jobs are distributed and served can be readily appreciated by the fact that about two-hundred and fifty fitters, maintenance men, &c., are generally attended to and clear of the building between 8 a.m. and 9 a.m.

The storing under one roof of all appliances and fittings required by the workmen has undeniably increased efficiency, as a considerable amount of time is now saved by men not having to call at Kent Street for meters and fittings.

To ensure the proper control and distribution of the large stocks held, it is necessary for the staff to obtain signed requisitions before the issue of any material. Records of the stock are kept in the Central Stores office on the visible index-card system. In the Sales Section every article is coded, and the mere quoting of a number indicates to the storekeeper the article required. This method has proved extremely helpful, and it is hoped to extend it. Accurate stock recording and the abandonment of late working are perhaps two of the most important results obtained from the introduction of a perpetual stock inventory, which has superseded the old method of half-yearly stocktaking.

Gas to the Rescue

Contractors Saved From Long "Shut-Down"

On Sunday, Jan. 21, Messrs. Bradley's Clothing Factory at Kettlebrook experienced a multiple fracture of the heating boiler, with the result that they were unable to heat the factory ready for work on the Monday. Consequently some 200 employees had to be sent home.

As repairs to the boiler would take some considerable time to carry out, the Manager approached the Tamworth Gaslight and Coke Company with a view to ascertaining if they could help them out of their difficulty. A temporary scheme was quickly submitted to Messrs. Bradley's head office at Chester. This was approved, and instructions to proceed were received by the Gas Company at 2.30 p.m. on the Tuesday. The necessary gas-heating appliances and materials were prepared, and the work of installation, comprising 12 fires and 14 radiators, commenced at 6 p.m. Working throughout the night, the Gas Company's fitters completed the installation by Wednesday morning, the usual temperature conditions being attained at 8 a.m. A number of the employees were thus enabled to commence work, and on the following day (Thursday), the factory was in full production.

The Directors of Messrs. Bradley's have expressed their thanks to Mr. L. N. Burtonshaw, the Gas Company's Manager, for this speedy and efficient job, which has enabled them to resume work without more serious loss of production time.

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Trade News

Powers-Samas Exhibition

Powers-Samas Accounting Machines, Ltd., are holding a special Private Exhibition at Powers-Samas House from Feb. 5 to 9, at which a number of entirely new developments in punched card machines are being shown for the first time.

It is unnecessary at the present juncture to stress the value of punched card methods for the costing and accounting work of armaments, aeroplane production, engineering and other essential trades, and the importance of this Exhibition may be judged from the list of new machines which are being exhibited. These include the Model B Sterling Multiplying Punch which performs double multiplication, addition and subtraction at one passage of the punched card and without decimalizing of shillings and pence; the Powers Interpolator, a unique machine which automatically and rapidly compares, matches, groups or segregates punched cards; the Powers Transcriber which automatically types on the punched card the interpretation of the punching; Powers Unit Card Billing Device which considerably economises tabulating time; the Powers 40 Sector Numeralpha Unit, and various other equipment.

Powers-Samas House is close to Chancery Lane Tube Station and opposite the "Prudential" Head Offices, and the Exhibition is to open each day from 10 a.m. to 6 p.m. Visitors will be admitted on presentation of their Business Card or an Invitation Ticket which can be obtained from Powers-Samas Accounting Machines, Ltd., Powers-Samas House, Holborn Bars, London, E.C. 1.

Morris Pulley-Blocks

From Herbert Morris, Ltd., of Loughborough, we have received a copy of their latest booklet dealing with worm-gear pulley-blocks of capacities from 5 cwt. to 60 tons. The purpose of a good pulley-block, they state, is to yield a maximum of lift in return for human effort. In Morris pulley-blocks, this objective is achieved through the use of a machine-cut worm and worm-wheel of the right pitch angle and tooth profile to give the highest mechanical efficiency.

The gears are housed in a rigid steel frame to ensure continuous alignment. Their motion is so easy that a load on the bottom-block would set them rotating. So a one-way automatic brake is fitted. This allows free rotation in lifting but creates just enough resistance in lowering to keep the load in balance. The brake resistance is at all times proportional to the load on the hook.

The booklet, which is copiously illustrated, goes on to give details of construction and testing, with full details, photographs, and capacities of a wide variety of pulley-blocks designed for many different applications.

Holmes-Connersville Meters

A brochure just produced by W. C. Holmes & Co., Ltd., of Huddersfield, describes and illustrates the Holmes-Connersville meter, which is widely used in the Gas Industry, and also the "B.M." meter which is offered as an alternative when it is desired to measure gas over a wide range down to a few cubic feet per hour.

Holmes-Connersville meters are constructed almost entirely of cast iron and consist of two impellers enclosed in a casing. The gas enters the meter through the inlet box, exerts a pressure on the impellers, causing them to revolve, and passes out at the bottom through the bedplate. It will be realized that for a complete revolution each impeller passes through the vertical position twice, forming a pocket between the impeller and the adjacent cylinder. Thus, as there are two impellers, four pockets of gas are trapped and released during each revolution of the meter. It is, therefore, a simple matter to transpose revolutions per minute into cubic measurement by having the counter suitably geared. The impellers are timed relative to each other by two pairs of gears, one being clamped on the shafts at each end of the meter. The backlash in the gears is regulated by setting one pair of gears against the other, thus enabling them to be reset at any time without the necessity for new gears.

The brochure goes on to give further details of the design and construction of the meter, together with various test results, while photographs and diagrams enhance its value as a worthy addition to the gas engineer's reference library.

Dust Collection Plants

The Visco Engineering Co., Ltd., of Stafford Road, Croydon, has issued in booklet form a reprint of an article recently published in the *Iron and Coal Trades Review* describing two interesting plants for the collection of coal dust at tipplers which the Company has installed, one at the Prince of Wales Colliery of the Pontefract Collieries, Ltd., and the other at the Maltby Main Colliery of Amalgamated Denaby Collieries, Ltd. The installations not only demonstrate successful methods of dealing with dust from tipplers and screens, but make an important contribution towards the solution of the larger problem of coal dust collection in general.

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DRY DEMONSTRATION METERS

Specially designed for Showroom or Cookery Demonstration Work.

The dial is 9 in. in diameter and a large pointer demonstrates on the outer of the two large circles the hourly rate by one minute observation; and on the inner circle 5 cubic feet and 10 cubic feet in the 100 and 200 cubic feet meters respectively.

Available in two sizes for 100 and 200 cubic feet per hour.

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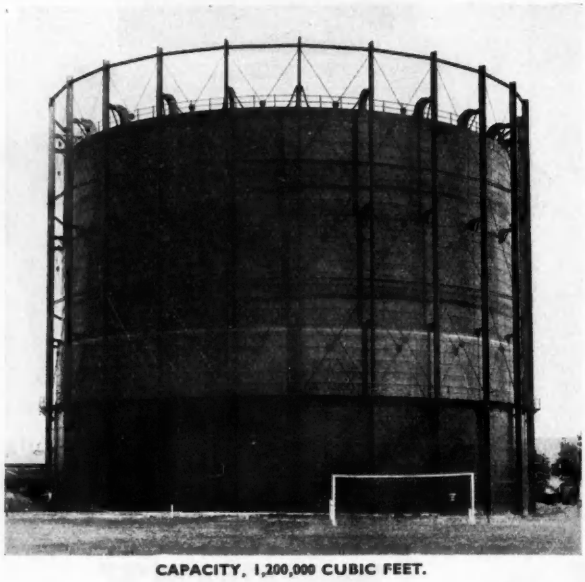

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Current Sales of Gas Products

The London Market

Jan. 29.

Current values of tar products in the London market are as follows:

Pitch about 35s. per ton f.o.b.

Creosote about 5d. per gallon.

Refined tar 3¾d. to 4d.

Toluole is now controlled by the Ministry of Supply Order No. 1, which fixes the maximum price at which this material may be sold.

Pure benzole about 1s. 10d.

95/160 solvent naphtha about 1s. 11d.

90/160 pyridine 15s. to 16s.

All per gallon naked.

Refined naphthalene crystals about £17 to £20 per ton in bags.

All *ex* makers' works.

The Provinces

Jan. 29.

Crude Gas-Works Tar, 19s. 3d. to 24s. 3d.

To avoid misunderstanding, it is necessary to state that the above price is not claimed to represent a market value. It is a price worked out from week to week upon a system which has been used for many years as a basis for the fixing of certain contracts for crude tar of varying qualities in different areas.

The average prices of gas-works products during the week were: Pitch—East Coast, 32s. 6d. to 35s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 32s. 6d. to 35s.* Toluole, naked, North, 1s. 9½d. (Controlled by the Ministry of Supply Order No. 1, which fixes the maximum price at which this material may be sold). Coal tar, crude naphtha, in bulk, North, 9d. to 9½d. Solvent naphtha, naked, North, 1s. 8d. to 1s. 9d. Heavy naphtha, North, 1s. 4½d. to 1s. 5½d. Creosote, *ex* works, in bulk, North, liquid and salty, 4½d. to 5d.; Scotland, 4½d. to 5d.; low gravity, 4¾d. to 5d. Carbolic acid, 60's. 3s. 3d. to 3s. 4½d. Naphthalene, £15 to £20. Salts, 75s. to 85s., bags included. Anthracene, "A" quality, 4½d. to 4¾d. per minimum 40% purely nominal. Heavy oil: Unfiltered anthracene oil, (min. gr. 1,080), 5¼d. to 5½d.; filtered heavy oil (min. gr. 1,080), 5¾d. to 6d.; heavy anthracene oil gr. less than 1,080, 6d. to 6¼d.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls, whatever they may be.

Scotland

GLASGOW, Jan. 27.

Little or no change has taken place in market conditions during the week. Home trade is still rather quiet although there are signs of an improvement in export business.

Crude gas-works tar.—The actual value of this is now round 34s. to 36s. per ton *ex* works in bulk.

Pitch.—With an increased demand prices have been raised to 25s. to 27s. per ton f.o.b. for export and about 25s. per ton *ex* works in bulk for home trade.

Refined tar.—Export enquiries are more numerous but plentiful supplies are available. Home price is unchanged at 3¾d. to 4d. per gallon while, for export, supplies are available at 2½d. to 2¾d. per gallon, naked at makers' works.

Creosote oil.—Production is well looked after with prices steady as under: Specification oil, 5d. to 5¼d. per gallon; low gravity, 5¾d. to 6d. per gallon; neutral oil, 5½d. to 5¾d. per gallon; all *ex* works in bulk.

Cresylic acid.—There is not much new business offering, but prices are unchanged as under: Pale, 97/99%, 2s. 2d. to 2s. 4d. per gallon; dark, 97/99%, 1s. 10d. to 2s. per gallon; pale, 99/100%, 2s. 6d. to 2s. 9d. per gallon; all *ex* works in buyers' packages.

Crude naphtha.—Supplies are limited with value nominal at round 7d. per gallon *ex* works in bulk, according to quality.

Solvent naphtha.—90/160 grade is 1s. 8d. to 1s. 9d. per gallon and 90/190 heavy naphtha is 1s. 4d. to 1s. 5d. per gallon.

Motor benzole is called 1s. 6½d. to 1s. 7d. per gallon.

Pyridine.—Prices are nominal at 15s. to 16s. per gallon for 90/160 grade and 17s. to 18s. per gallon for 90/140 grade.

There's only one

Permac!

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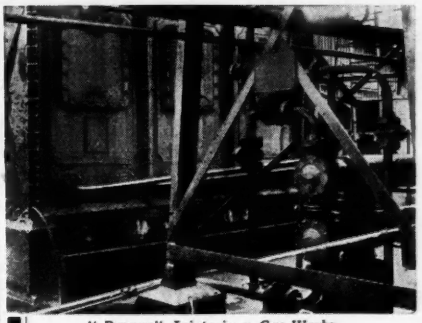
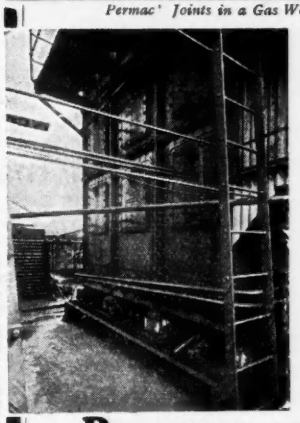


"Permac" Joints in a Gas Works

Permac' Joints in a Gas Works.



"Permac" Joints in a Gas Works.

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Works & Head Office: **Miles Platting, Manchester 10** - *Telephone*—Collyhurst 2961-5

London Office (Temporary Address): Bath Rd., Harmondsworth, W. Drayton, Middlesex *Tel.*—West Drayton 2288/9

GAS STOCKS AND SHARES

There was more activity on the Stock Exchange for the greater part of last week, and the upward movement in gilt-edged stocks spread to several other sections. Some hesitancy developed on Friday, however, and British Funds closed fractionally lower. The home rail market still awaits news of the Government's intentions as regards compensation, but prices remained steady apart from a few reactions due to profit-taking. Industrials also shared in the increased activity, and there were several bright features, notably among tobaccos. The more speculative groups were dull and uninteresting.

The heavier turnover in Gas stocks and shares continued again last week, and with the increased demand for high-class fixed-interest stocks a number of these in this section made further improvement. In the Official List, Alliance and Dublin 4% debenture recorded a sharp rise of 9½ points to 85, business being done at this price, and it will be seen that several were moved up from 3 to 4 points. In contrast to the previous week, price improvements were not confined to this class of stock, for among "ordinaries" Gas Light units gained 1s. to 17s. 6d., Cardiff moved up 4½ points to 104½, and Tottenham closed 2½ higher at 92½. The general position was also reflected on the Provincial exchanges, and here the two Bristol 4% debenture stocks took the lead with gains of 8½ points each. Apart from the rise of 5 in Croydon 4% debenture, nominal quotations in the Supplementary List remained unchanged.

The first of the dividend announcements are now coming in and, as, investors have already been warned to expect, the few so far published show reductions. The Gas Light and Coke Company is distributing a final dividend of £1 14s.% making £4 10s.% for the year against £5 12s.%, the Commercial final is 1% making 3% for the year, compared with 4½% for 1938; Wandsworth and District a final of 1½% making 5% for the year against 7%; and Watford and St. Albans a final of 3%, making £6 7s. 6d.%, a drop of ½% only on 1938.

Official Quotations on the London Stock Exchange

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Jan. 26	Rise or Fall on Week.
1,767,439	Sept. 4	8	8	Alliance & Dublin Ord. ...	115—125	...
374,000	Dec. 27	4	4	Do. 4 p.c. Deb. ...	80—90	+9½
877,576	Nov. 6	5	5	Ascd. Gas & Water U'd'ts Ord.	14/6—16/6	...
900,000	"	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	17/—19/—	...
535,545	"	4	4	Do. 4 p.c. Red. Cum. Pref.	15/—17/—	...
318,730	"	4	4	Do. 4 p.c. Irred. Cum. Pref.	13/6—15/6	...
750,000	Sept. 18	3½	3½	Do. 3½ p.c. Red. Deb. ...	80—85	...
560,870	Aug. 21	7	7	Barnet Ord. 7 p.c.	110—120	...
300,000	Oct. 9	1/9§	1/4§	Bombay, Ltd.	19/6—20/6	...
181,185	Aug. 21	9½	9½	Bournemouth Sliding Scale ...	147—152	...
690,526	"	7	7	Do. 7 p.c. max. ...	120—125	...
493,960	"	6	6	Do. 6 p.c. Pref. ...	115—120	...
50,000	Dec. 18	3	3	Do. 3 p.c. Deb. ...	68—73	...
362,025	"	4	4	Do. 4 p.c. Deb. ...	90—95	...
335,000	"	5	5	Do. 5 p.c. Deb. ...	105—110	...
357,900	Aug. 21	7½	7½	Brighton, &c., 6 p.c. Con. ...	105—110	...
699,955	"	6¾	6¾	Do. 5 p.c. Con. ...	100—105	...
205,500	"	6	6	Do. 6 p.c. 'B' Pref. ...	100—105	+2½
855,000	Sept. 18	8	7	British Ord.	90— 95	...
100,000	Dec. 18	7	7	Do. 7 p.c. Pref.	118—123	..
350,000	"	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	110—115	...
120,000	"	4	4	Do. 4 p.c. Red. Deb.	73—78	...
450,000	"	5	5	Do. 5 p.c. Red. Deb.	98—103	...
100,000	22 May '33	6	4	Cape Town, Ltd.	¼—¾	...
100,000	6 Nov. '33	4½	4½	Do. 4½ p.c. Pref.	¼—¾	...
150,000	Dec. 18	4½	4½	Do. 4½ p.c. Deb.	55—65	...
626,860	July 17	6	6	Cardiff Con. Ord.	102—107	+4½
237,860	Dec. 18	5	5	Do. 5 p.c. Red. Deb. ...	95—100	...
98,936	Oct. 9	2/—	2/—	Colombo Ord.	1⅞—1⅞	...
24,510	"	1/4§	1/4§	Do. 7 p.c. Pref.	20/6—22/6	...
739,453	Sept. 27	-/11.48	-/11.48	Colonial Gas Assn. Ltd. Ord. ...	15/—17/—	...
296,144	"	1/3.30	1/3.30	Do. 8 p.c. Pref.	20/6—22/6	...
1,775,005	July 31	4	4	Commercial Ord.	47—57	...
140,000	Aug. 21	4	4	Do. 4 p.c. Red. Pref. ...	88—93	...
620,000	Dec. 11	3	3	Do. 3 p.c. Deb.	58—63	+3
286,344	Aug. 21	5	5	Do. 5 p.c. Deb.	92—97	...
200,000	"	3½	3½	Do. 3½ p.c. Red. Deb. ...	94— 99	...
807,560	July 31	7	7	Croydon sliding scale	100—105	...
644,590	"	5	5	Do. max. div.	80—85	...
820,468	Dec. 27	5	5	Do. 5 p.c. Deb.	97—102	...
208,660	Aug. 21	5	5	Dudley, Brierley Hill & Dist. Ord.	100—105	...
82,275	"	5	5	Do. 5 p.c. Con. Pref. ...	95—100	+½
79,000	"	3½	3½	Do. 3½ p.c. Red. Deb. ...	94—99	...
239,000	July 31	5	5	East Hull Ord. 5 p.c.	80—90	...
187,215	Aug. 21	6	5½	East Surrey Ord. 5 p.c. ...	98—103	...
176,211	Dec. 18	5	5	Do. 5 p.c. Deb. ...	90—100	...
250,000	Nov. 13	8	4	Gas Consolidation Ord. 'B' ...	14/——17/—	...
250,000	"	4	4	Do. 4 p.c. Red. Cum. Pref.	16/——18/—	...
19,152,410	July "	5§	5§	Gas Light & Coke Ord. ...	17/——18/—a	+1/—
2,600,000	"	3½	3½	Do. 3½ p.c. max.	61—66	+1
4,477,106	"	4	4	Do. 4 p.c. Con. Pref. ...	83—88	+3
2,993,000	Jan. 2	3§	3§	Do. 3§ p.c. Red. Pref. ...	83—88	...
8,602,497	Nov. 27	3	3	Do. 3 p.c. Con. Deb. ...	74—79	+4
3,642,770	"	5	5	Do. 5 p.c. Red. Deb. ...	101—106	...
1,500,000	"	4½	4½	Do. 4½ p.c. Red. Deb. ...	99—104	...
700,000	Sept. 4	3½	3½	Do. 3½ p.c. Red. Ded. ...	85—90	...
270,466	July 31	6	6	Harrogate New Cons.	95—100	...
157,500	Mar. 20	‡1/—	‡1/—	Hong Kong and China Ord. ...	¼—¾	...
5,600,000	Oct. 23	12	4	Imperial Continental Cap. ...	78—83	+1
172,810	July 31	3½	3½	Do. 3½ p.c. Red. Deb. ...	81—86	...
63,480	Dec. 18	3	3	Maidstone 3 p.c. Deb.	55—60	...
45,000		‡10	‡8	Malta & Mediterranean ...	92—102	...
				Metropolitan (of Melbourne) ...		
392,000	Oct. 2	5½	5½	5½ p.c. Red. Deb.	95—100	...
231,977	Aug. 21	5	5	M.S. Utility 'C' Cons.	75—80	...
968,658	"	4	4	Do. 4 p.c. Cons. Pref. ...	75—80	...
390,076	Dec. 18	4	4	Do. 4 p.c. Deb. ...	72—82	...

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Jan. 26.	Rise or Fall on Week.
148,955	Dec. 18	5	5	M.S. Utility 5 p.c. Deb. ...	95—100	...
125,000	Jan. 2	3½	3½	Do. 3½ p.c. Red. Bds. ...	90—95	...
675,000	Nov. 6	†3	†4	Montevideo, Ltd.	50—60	...
250,000	Aug. 21	7½	7½	North Middlesex 6 p.c. Con. ...	105—115	...
396,160	July 31	5	5	Northampton 5 p.c. max. ...	90—95	...
300,000	Nov. 6	†7	9	Oriental, Ltd.	118—128	...
468,537	Dec. 11	8	7	Plymouth & Stonehouse 5 p.c.	98—103	...
621,667	July 31	8½	8½	Portsmouth & Gosport Cons.	111—116	...
241,446	"	5	5	Do. 5 p.c. max.	80—90	...
73,350	"	5	5	Do. 5 p.c. Pref.	88—93	...
75,000	"	4	4	Do. 4 p.c. Pref.	75—80	...
114,000	July 31	5	5	Preston 5 p.c. Pref.	90—95	...
247,966	Dec. 18	4	4	Primitiva 4 p.c. Cons. Deb. ...	93—98	...
625,959	Jan. 15	4	4	Do. 4 p.c. Red. Deb. ...	91—96	...
15,000	Sept. 4	6	6	San Paulo 6 p.c. Cum. Pref. ...	7½—8½	...
441,275	Oct. 9	1/1½	1/1½	Severn Val. Gas Cor. Ld. Ord.	16/6—18/6	...
460,810	Oct. 2	-/10½	-/10½	" " 4½ p.c. Cum. Pref. ...	17/—19/—	...
133,201	Aug. 21	5	8½	Shrewsbury 5 p.c. Ord. ...	107—117	...
9,000	June 5	†4	†4	South African Ord.	4—5	..
1,996,297	Aug. 21	1/2§	1/2§	South East'n Gas Cn. Ld. Ord. ...	15/6—17/6	...
1,000,000	"	-/10§	-/10§	Do. 4½ p.c. Red. Cum. Pref.	17/—19/—	...
769,191	"	4	4	Do. 4 p.c. Cum. Pref. ...	14/6—16/6	...
150,000	"	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	..
6,709,895	July 31	6	5	South Met. Ord.	62—67	+1
1,135,812	"	6	6	Do. 6 p.c. Irred. Pref. ...	100—105	+1
850,000	"	4	4	Do. 4 p.c. Irred. Pref. ...	75—80	+2
1,895,445	Dec. 27	3	3	Do. 3 p.c. Deb.	65—70	...
1,000,000	Jan. 15	5	5	Do. 5 p.c. Red. Deb. ...	100—105	...
600,000	"	3½	3½	Do. 3½ p.c. Red. Deb. ...	92—97	...
1,543,795	July 31	6	6	South Suburban Ord. 5 p.c. ...	77—82	...
512,925	"	5	5	Do. 5 p.c. Pref.	90—95	...
500,000	"	4	4	Do. 4 p.c. Pref.	78—83	+3
250,000	"	3½	3½	Do. 3½ p.c. Red. Pref. ...	85—90	...
888,587	Dec. 11	5	5	Do. 5 p.c. Deb.	98—103	+3
250,000	"	4	4	Do. 4 p.c. Deb.	77—82	...
200,000	July 31	3	3½	Do. 3½ p.c. Red. Deb. ...	85—90	...
427,859	Sept. 18	1/2§	3§	S. Western Gas & Water Ord.	13/——15/—	...
160,523	Oct. 9	-/10§	-/10§	Do. 4½ p.c. Red. Cum. Pref.	17/6—19/6	...
110,000	Dec. 18	4	4	Do. 4 p.c. Red. Deb. ...	90—95	...
750,541	July 31	5½	5	Southampton Ord. 5 p.c. ...	75—85	...
148,836	Dec. 27	4	4	Do. 4 p.c. Deb. ...	75—80	...
350,000	July 31	5½	5½	Swansea 5½ p.c. Red. Pref. ...	98—100	...
200,000	Dec. 18	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—100	..
1,076,490	July 31	6§	6½	Tottenham and District Ord....	90—95	+2½
409,835	"	5§	5½	Do. 5½ p.c. Pref.	100—105	...
62,235	"	5	5	Do. 5 p.c. Pref.	90—95	...
453,380	Dec. 11	4	4	Do. 4 p.c. Deb.	80—85	...
1,247,505	Oct. 23	6	4	U. Kingdom Gas Cor. Ord. ...	13/——15/—	...
1,085,952	Nov. 20	4½	4½	Do. 4½ p.c. 1st Cum. Pref.	14/6—16/6	...
772,709	"	4	4	Do. 4 p.c. 1st Red. Cum. Pf.	14/6—16/6	...
745,263	Dec. 18	4½	4½	Do. 4½ p.c. 2nd Non-Cum. Pf.	12/6—14/6	...
1,093,656	Sept 18	3§	3§	Do. 3½ p.c. Red. Deb. ...	85—90	...
378,106	Mar. 6	7	7	Uxbridge, &c., 5 p.c.	90—100	...
133,010	"	5	5	Do. 5 p.c. Pref.	95—105	...
1,371,138	July 31	7	6½	Wandsworth Consolidated ...	87—92	-1
2,525,768	"	4	4	Do. 4 p.c. Pref.	80—85	+2
1,343,964	Dec. 18	5	5	Do. 5 p.c. Deb.	98—103	+1
383,745	"	4	4	Do. 4 p.c. Deb.	80—85	...
400,000	"	3§	3§	Do. 3§ p.c. Red. Deb. ...	90—95	...
558,342	July 31	6§	6§	Watford and St. Albans Ord. ...	95—100	...
200,000	"	5	5	Do. 5 p.c. Pref.	85—95	...
200,000	"	5§	5§	Do. 5½ p.c. Pref.	90—100	...
200,000	"	4	4	Do. 4 p.c. Rd. Pf. (1973/8)	85—90	...
100,000	"	—	33/4§	Do. 4 p.c. Red. Pf. (1959)	95—100	...
200,000	Dec. 11	3½	3½	Do. 3½ p.c. Red. Deb. ...	83—88	...

a.—The quotation is per £1 of Stock. * Ex. Div. † Paid free of income-tax. ‡ For year. § Actual.

Supplementary List and Provincial Exchanges overleaf.

STOCK AND SHARE LIST—Contd.

Supplementary List, not Officially Quoted, London

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Nominal Quotations Jan. 26.	Rise or Fall on Week.
202,152	Sept. 4	5	5	Ascot Ord.	80—90	...
128,182	Dec. 27	5	5	Do. 5 p.c. Pref. ...	88—93	...
31,035	Aug. 21	-/4⅛	-/4⅛	Associated Utilities 4 p.c. Pref.	15/—17/-	...
100,000	Dec. 18	3⅛	3⅛	Do. 3⅛ p.c. Red. Deb. ...	90—95	...
17,000	Aug. 21	8	8	Bognor Orig. Ord. 'A' ...	105—115	...
62,210	,,	8	8	Do. New Add. 'A' ...	105—115	...
87,160	,,	7	7	Do. New 7 p.c. max. ...	100—110	...
37,440	July 31	10	10	Cam. Univ. & Town 10 p.c. max.	110—120	...
125,970	,,	7	7	Do. 7 p.c. max.	90—100	...
39,025	,,	5	5	Do. 5 p.c. max.	80—90	...
96,410	July 17	4½	4½	Cardiff 4½ p.c. Pref.	92—97	...
55,520	July 31	6	6	Colchester 6 p.c. Pref.	95—100	...
90,550	Sept. 18	5	5	Do. 5 p.c. Deb. ...	100—105	...
150,000	July 31	4	4	Croydon 4 p.c. Pref.	70—75	...
130,000	Dec. 27	4	4	Do. 4 p.c. Deb.	80—85	+5
65,000	Aug. 21	7½	7½	Eastbourne 'A' 5 p.c.	105—115	...
198,000	,,	6	6	Do. 'B' 3½ p.c.	90—100	...
112,312	,,	5	5	Do. 5 p.c. Pref.	90—95	...
130,000	Dec. 18	5	5	Do. 5 p.c. Deb.	95—105	...
130,500	Aug. 10	7½	7½	Exeter New Ord. (£10) ...	10—12	...
24,000	Aug. 21	8½	8½	Gt. Yarmouth 8½ p.c. max. (£30)	15—20	...
59,400	,,	7½	7½	Do. 7½ p.c. max. (£30) ...	10—15	...
51,160	Dec. 11	5½	5½	Do. 5½ p.c. Deb.	102—107	...
152,600	Sept. 4	9	8	Guildford Cons.	110—120	...
54,055	,,	5	5	Do. 5 p.c. Pref.	90—95	...
68,250	Dec. 11	5	5	Do. 5 p.c. Deb.	90—95	...
136,600	Aug. 21	7	7	Hampton Court Cons. ...	100—110	...
86,046	June 19	14½	15	Holyh'd&N.W.G.&W.Cpn.Ord.	13/6—15/6	...
80,000	Aug. 21	4	4	Lea Bridge 4 p.c. Pref.	5—75	...
60,000	,,	6	6	Do. 6 p.c. Pref.	105—115	...
94,876	Dec. 18	4	4	Do. 4 p.c. Deb.	75—80	...
73,620	Sept. 18	8⅜	8⅜	Luton Cons. 'A'	115—125	...
107,960	Sept. 18	5½	4	Mid Kent Ord. (£10)	7½—8½	...
230,940	July 31	10	10	Oxford & District Ord. ...	135—145	...
47,112	,,	5	5	Do. 5 p.c. Pref.	85—95	...
90,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	100—105	...
126,193	Oct. 30	7½	7½	Peterborough Ord.	140—150	...
64,990	Sept. 18	7½	7	Redditch Ord.	100—110	...
166,850	July 31	8	8	Romford Ord.	110—120	...
60,000	,,	4	4	Do. 4 p.c. Pref.	85—90	...
44,000	Sept. 18	5	5	Do. 5 p.c. Deb.	95—100	...
25,570	July 31	5½	5½	Rugby 5½ p.c. Pref.	95—105	...
25,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	100—105	...
42,750	Dec. 11	5½	5½	Do. 5½ p.c. Deb.	103—108	...
110,950	Aug. 21	8	8	Ryde Ord.	110—120	...
270,086	Sept. 4	7	7	Slough Ord.	100—110	...
21,000	Dec. 11	5	5	Do. 5 p.c. Deb.	92—97	...
28,872	Nov. 6	5½	5½	S. Midland Gas Cpn. Ltd. Ord.	14/—16/-	...
28,866	Sept. 18	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	14/—16/-	...
117,228	Aug. 21	7	5	Swindon Cons.	70—80	...
60,425	Dec. 18	5	5	Do. 5 p.c. Deb.	92—97	...
64,380	,,	5	5	Torquay & Paignton 5 p.c. Pref.	82—87	...
130,000	Aug. 21	8	5	Wakefield Ord.	85—95	...
81,650	,,	5	5	Do. 5 p.c. max.	75—80	...
82,000	July 31	6	6	Weymouth Ord.	80—90	...
273,626	Aug. 21	7	7	Wolverhampton Cons. Ord. ...	115—125	...
98,384	,,	6	6	Do. 6 p.c. Pref.	105—115	...
160,000	Dec. 18	5½	5½	Do. 5½ p.c. Red. Deb. ...	100—105	...
106,490	Aug. 21	5½	5½	Wrexham Ord.	70—80	...
90,000	Dec. 18	5	5	York 5 p.c. Red. Deb.	95—100	...
133,640	July 31	6½	6	Yorktown (Cam.) 5 p.c. Cons.	80—90	...
120,000	,,	5	5	Do. 5 p.c. Pref.	85—95	...
35,000	Dec. 18	5½	5½	Do. 5½ p.c. Deb.	103—108	...

BRISTOL EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Jan. 26	Rise or Fall on Week
347,756	July 31	6	5	Bath Cons.	103—107	-2
1,667,250	,,	5	5	Bristol, 5 p.c. max.	96—99	...
120,420	Dec. 18	4	4	Do. 1st 4 p.c. Deb.	97—100	+8
415,250	,,	4	4	Do. 2nd 4 p.c. Deb. ...	97—100	+8
328,790	,,	5	5	Do. 5 p.c. Deb.	113—116	+3
274,000	July 31	5	5	Newport (Mon.) Ord.... ...	93—95	...
13,200	Sept. 4	8⅔	7	Pontyp'l Gas & W. 10 p.c. 'A'	12—13	...
13,600	,,	6	5	Do. 7 p.c. 'B'	10½—11	...
40,000	,,	6	5	Do. 7 p.c. 'C'	10½—11	...
140,778	July 31	5	5	Weston-super-Mare Cons. ...	93—98	...
64,338	Dec. 27	4	4	Do. 4 p.c. Deb.	90—95	...
33,340	,,	7½	7½	Do. 7½ p.c. Deb.	140—150	...

LIVERPOOL EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Jan. 26	Rise or Fall on Week
157,150	July 31	6½	5	Chester 5 p.c. Ord.	100—103	...
92,500	Dec. 18	4	4	Do. 4 p.c. Pref.	80—84*	...
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	85—88*	...
41,890	,,	4	4	Do. 4 p.c. Red. Deb. ...	95—99*	...
2,167,410	Aug. 21	6	6	Liverpool 5 p.c. Ord.	101—103	+1
245,500	Dec. 18	5	5	Do. 5 p.c. Red Pref. ...	94—99*	...
306,083	July 17	4	4	Do. 4 p.c. Deb.	99—101	...
106,280	July 31	10	10	Preston 'A' 10 p.c.	174—184	...
188,219	,,	7	7	Do. 'B' 7 p.c.	126—136	...

NEWCASTLE EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Jan. 26	Rise or Fall on Week
122,577	Aug. 21	7	7	Blyth 5 p.c. Ord.	115—120	...
732,000	Aug. 21	3	3	Hartlepool G. & W. Co. & New	65—66	...
2,061,315	July 31	5⅜	5	Newcastle & Gateshead Con.	19/6—20/-ex	+-/3
682,856	,,	4	4	Do. 4 p.c. Pref.	88—90	...
776,706	Dec. 27	3½	3½	Do. 3½ p.c. Deb.	78—80	...
277,285	April 24	5	5	Do. 5 p.c. Deb. '43 ...	98—103	...
332,351	Aug. 21	6	6	Sunderland 6 p.c. max. ...	108—109	...

NOTTINGHAM EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Jan. 26	Rise or Fall on Week
542,270	Aug. 10	9	6	Derby Con.	100—110	...
55,000	Dec. 18	4	4	Do. 4 p.c. Deb.	98—103	...
20,000	June 19	5	5	Long Eaton 5 p.c. Pref. ...	9—11	...
80,000	,,	5	5	Do. 5 p.c. Deb. ...	100—105	...

SHEFFIELD EXCHANGE

Issue.	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Jan. 26	Rise or Fall on Week
10,000	Aug. 21	10	10	Great Grimsby 'A' Ord. ...	170—180	...
6,500	,,	10	10	Do. 'B' Ord. ...	170—180	...
79,000	,,	10	10	Do. 'C' Ord. ...	160—170	...
1,806,339	Feb. 20	6½	6½	Sheffield Cons.	119—122	...
95,000	Jan. 3	4	4	Do. 4 p.c. Deb.	98—100	...

a The quotation is per £1 of Stock.
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